Massachusetts Burn Injury Reporting System

2016 Annual Report

Department of Fire Services
Division of Fire Safety

Charles D. Baker, Governor
Thomas A. Turco. III, Secretary of Public Safety & Security
Peter J. Ostroskey, State Fire Marshal

Massachusetts Burn Injury Reporting System

2016 Annual Report

31 Years

Helping Prevent Burn Injuries

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Peter J. Ostroskey, State Fire Marshal
Commonwealth of Massachusetts • Department of Fire Services
Post Office Box 1025 State Road • Stow, Massachusetts 01775
Telephone (978) 567-3300 • Facsimile (978) 567-3199
www.mass.gov/dfs

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Executive Summary

M-BIRS was established in the Department of Public Safety in 1984 as a tool to help fire service and law enforcement personnel identify arsonists that may have been burned while setting fires. M-BIRS, along with the Office of the State Fire Marshal, was carried over to the Department of Fire Services in 1996. It remains a joint program of the Department of Fire Services and the Massachusetts Department of Public Health (DPH). The "Burn Registry" also provides valuable data on the nature of the burn problem in the Commonwealth. In 2016, the 31st full year of the Massachusetts Burn Injury Reporting System (M-BIRS), 35 acute care hospitals and other health care facilities reported 375 victims of burns. Forty-three (43) of these 375 victims received care at two Massachusetts hospitals and were reported to the system twice.

Massachusetts is renowned for its medical institutions and in particular for the advanced treatment available for burn and trauma victims. Many advances in treatment that have led to increased ability for victims to survive serious burn injuries took place in Massachusetts. Those advances started in the desperate days after the deadly 1942 nightclub fire at Boston's Cocoanut Grove and continue today with advances from the 2003 nightclub fire at The Station in West Warwick, RI.

Statutory Authority for M-BIRS in MGL 112, Section 12A
According to Massachusetts General Law (MGL) Chapter 112, Section 12A, the treatment of all burn injuries extending over 5% or more of a person's body surface area must be reported immediately to the State Fire Marshal.

M-BIRS Has Two Main Purposes — Identifying Arsonists and Burn Prevention
Data collected by the Massachusetts Burn Injury Reporting System is used in several ways. Investigators use the data to determine if an arsonist was treated for a burn that resulted from an attempt to illegally burn a building or vehicle. If these burns are not reported promptly, arsonists may continue to light fires that threaten life and property.

Our data has also been used to identify problems that need to be addressed by public education, regulation, or development of appropriate intervention strategies. We need to know what type of activities cause injuries, if the injuries are seasonal and how old the victims are in order to develop and implement effective prevention programs. We appreciate the efforts of the many dedicated doctors, nurses and clerical personnel who report the burn injuries promptly and completely. They make the program work.

Painful, disfiguring and expensive burn injuries exact a tremendous toll from their victims, their families and society. The statistics in this report illustrate the need for more burn prevention education and indicate to whom specific safety messages should be targeted.

State Fire Marshal Peter J. Ostroskey invites fire, health and medical professionals, classroom and community educators, day care teachers and elder service workers to join with him in making the Commonwealth safer from burn injuries.

DPH Alerts OSHA to Severe Burn Injuries in the Workplace
DPH notifies one of the three Occupational Safety and Health Administration (OSHA) area offices about those companies in which an employee was burned as a result of explosions, chemical exposures, electrocutions, or those that appeared to indicate likely violations of OSHA standards. In 2016, 29 burn injuries were referred to OSHA that met their criteria.

Scalds Caused 47% of Reported Burn Injuries
Scalds have been the leading cause of burn injuries for the past 31 years. In 2016, scalds caused 175, or 47%, of the burn injuries reported to M-BIRS. Hot beverages caused the majority of scald burns. Cooking liquids, hot tap water, and hot foods also caused significant numbers of scald burns.

Keep Hot Liquids Away from Babies and Preschoolers
In 2016, young children were the most frequent victims of scald burns. Forty-six percent (46%) of the 175 scald victims were under five years old, and most were less than one year. Children under five years of age were over eight times more likely to be scalded. Hot beverages posed the greatest risk to these young children; parents and caregivers of young children must remember that it is dangerous to drink hot beverages while holding a baby.

Set Hot Water Heaters at 125°F or Lower
Hot tap water is also a danger to very young children. It takes only one second of exposure to water at 155°F to cause a third degree burn. Hot water heaters should be set to temperatures of 125°F or lower. Massachusetts state law states that the temperature must be set between 110°F and 130°F. Caregivers should never leave a baby or toddler alone in a bath. Young children like to turn knobs and use levers and they may turn on the hot water when an adult is distracted.

Kitchen Is a Dangerous Place
A significant number of the burn injuries occur in the kitchen each year. Flame burns such as sleeves igniting while cooking, scald burns from grease splatters and hot liquids while cooking take place in the kitchen as well as scalds to young children who inadvertently get in the way. Since we must cook every day, we must learn to do so safely.

Cooking Fire Safety Campaign
The Department of Fire Services developed a public awareness campaign focused on cooking fire safety as it is the leading cause of home fires and injuries. The Cooking Fire Safety Campaign has two key messages: *Stand by Your Pan* and *Put a Lid On It*.

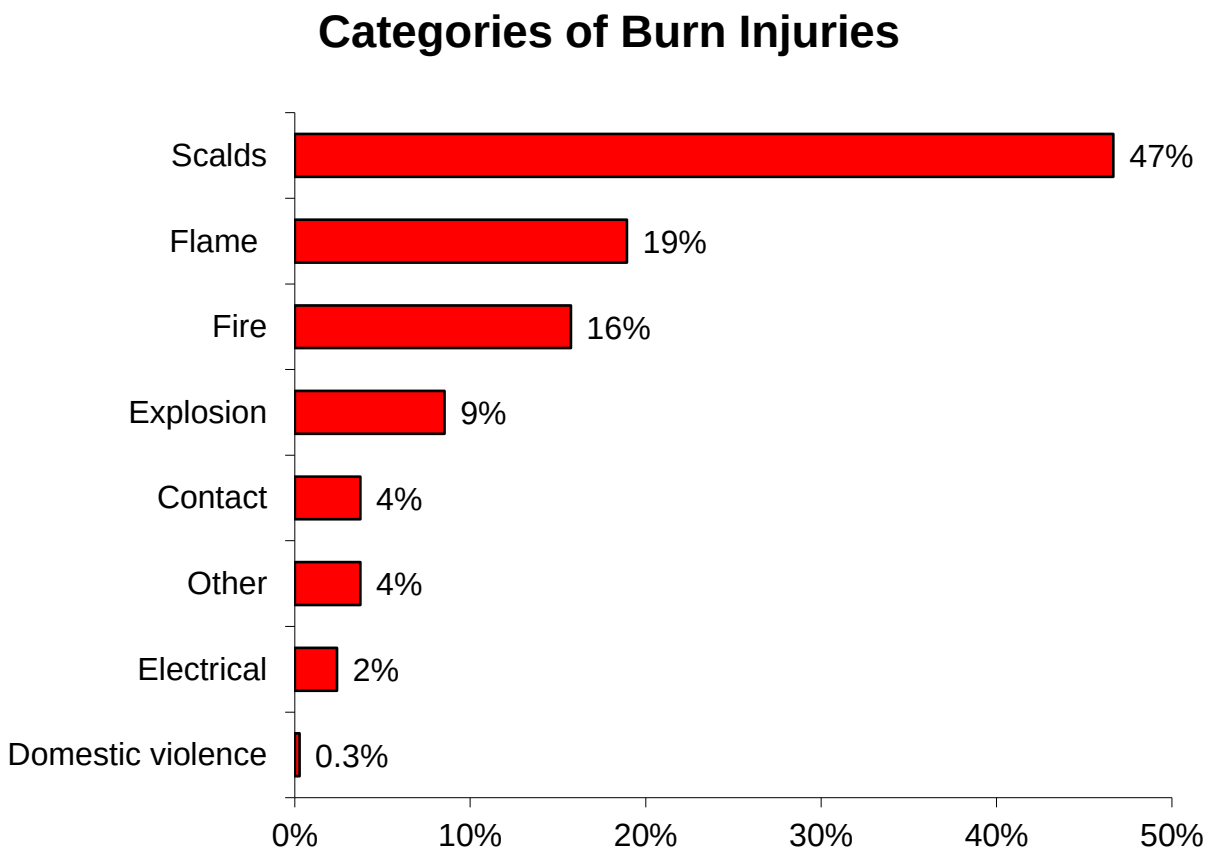
Flame Burns Cause the 2nd Most Burn Injuries
Flame burn injuries were the second highest cause of burn injuries in 2016, accounting for 19% of these burn injuries. Ignitable liquids caused 23% of these burns in 2016. Burns from fires caused 16% of the 2016 burn injuries. Camp or bon fires caused 68% of these burn injuries.

2/3 of Burns Occurred in the Victim's Home
Of the 375 burn injuries reported to M-BIRS in 2016, 248, or 66%, occurred in the victim's home or surrounding yard. Over half, or 58% of these burn injuries were scalds. Three (3), or 1%, of the home-related burn injuries resulted in the victim succumbing to his or her injuries.

Causes of Burn Injuries

In this report, we look at burn injuries in two different ways. In the first section, we look at the type of incident that caused the burn. Was the burn caused by a fire, a flame[1], a scald or something else? In the second section we look at burns by age, gender, work-related burns, burns in the home, burns reported by individual hospitals, and burn injuries by month.

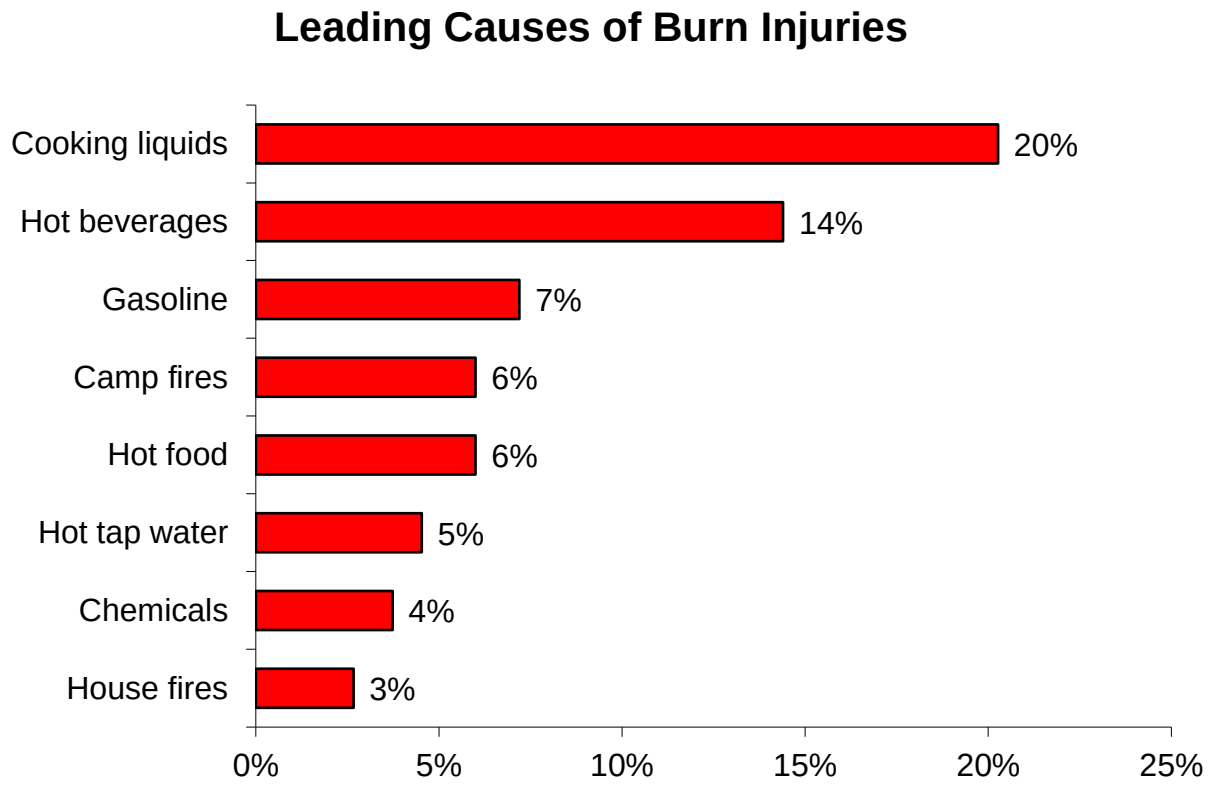
Almost 1/2 of All Burn Victims Never Come Near a Flame
Scalds from cooking liquids, hot liquids, tap water, food and steam caused 47% of the 375 burn injuries reported in 2016. Nineteen percent (19%) were caused by flame burns. Burns from fires from burning clothing, bedding or similar objects caused 16% of the burns.



[1] A burn is said to result from a flame when the fire is confined to the victim or the victim's clothing. When a wider area burns, the injury is considered to result from fire.

Type of Incidents Causing Burn Injuries

Look at Specific Causes and Equipment to Develop Prevention Strategies
To develop effective burn prevention policies and programs, we must first look at the specific items or behaviors that caused the burns. Twenty percent (20%) of the 375 burn injuries reported in 2016 were scalds from cooking liquids. Fourteen percent (14%) of the burns were caused by hot beverages. Gasoline caused 7% of total burns. For more information, please refer to the table *Specific Causes of Burn Injuries* in the Appendix.



Burn Injuries Caused by Scalds

Scalds Have Been the Leading Cause of Burn Injuries Every Year
Scalds have been the leading cause of burn injuries every year since the inception of M-BIRS. The percentage of total burns has ranged from a high of 48% in 1998 and 2015, to a low of 35% in 2005. The 10-year average from 2007 through 2016 is 44% of total annual reported burns.

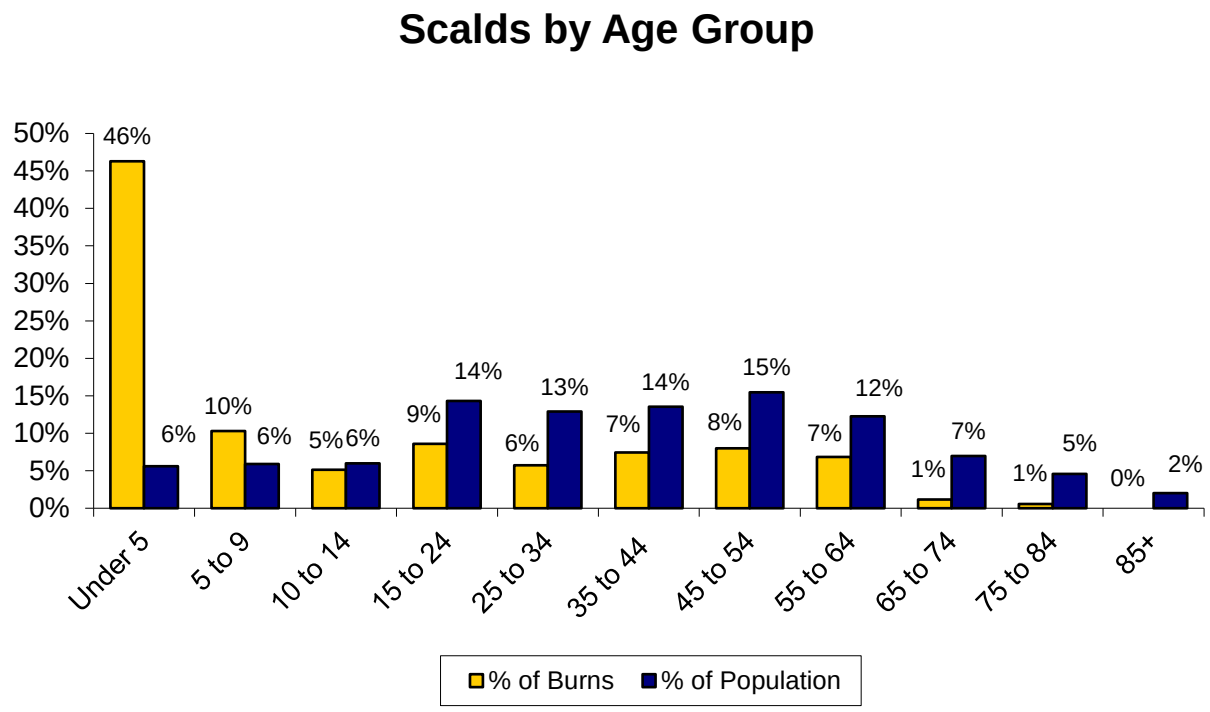
Scalds Caused 47% of All Burns

One hundred and seventy-five (175), or 47%, of the 375 reported burns were scalds. Sixteen (16), or 9%, of the 175 scalds occurred while the victim was working. One hundred and four (104), or 59%, of the 175 scald victims were male and 71, or 41%, were female.

Gender	# of Burns	% of Scalds
Female	71	41%
Male	104	59%
Total	175	100%

Children Under 5 Years Old Were Most at Risk for Scald Burns

Young children were the most frequent victims of scald burns. According to the 2010 U.S. Census, children under the age of five comprised 6% of the Massachusetts population. However that same age group accounted for almost half, or 46%, of all scald burns in 2016. Fifty-three (53), or 30%, were infants one year old or younger. Children aged five to nine accounted for 10% of scald burn injuries.



When the gold shaded bar of the graph representing the percent of scald burns is higher than the blue shaded bar representing percent of population, higher than expected risk of this type of injury exists. Pre-schoolers were scalded at a disproportionate rate; they were 8.3 times more likely to suffer a scald burn and children five to nine were 1.7 times as likely to suffer from a scald burn.

Cooking Liquids Caused 38% of All Scald Burns
Scald burns from cooking liquids were the leading cause of these burns, accounting for 38% of all scald burns in 2016. Scalds from hot beverages were the second leading cause of scald burns, causing 30% of the 175 scald burns.

Description	# of Burns	% of Scalds	% of All Burns
Cooking Liquids	66	38%	17.6%
Hot Beverages	53	30%	14.1%
Hot Food	21	12%	5.6%
Hot Tap Water	17	10%	4.5%
Pressure Cooker	4	2%	1.1%
Steam	3	2%	0.8%
Boiler	2	1%	0.5%
Car Radiator	2	1%	0.5%
Heater	2	1%	0.5%
Cooking	1	1%	0.3%
Heating	1	1%	0.3%
Ignitable Liquids	1	1%	0.3%
Pipe	1	1%	0.3%
Unknown	1	1%	0.3%
Total	175	100%	46.7%

From the beginning of M-BIRS in 1984, hot beverages have been the leading cause of scalds. However, this was not the case in 1999 or from 2005 through 2008[2]. Since 2010 cooking liquids has been the leading cause of scalds.

9-Month Old Girl Scalded by Hot Food
On December 8, 2016, a 9-month old girl received burns to 30% of her body surface area when the contents of the crock pot spilled on her.

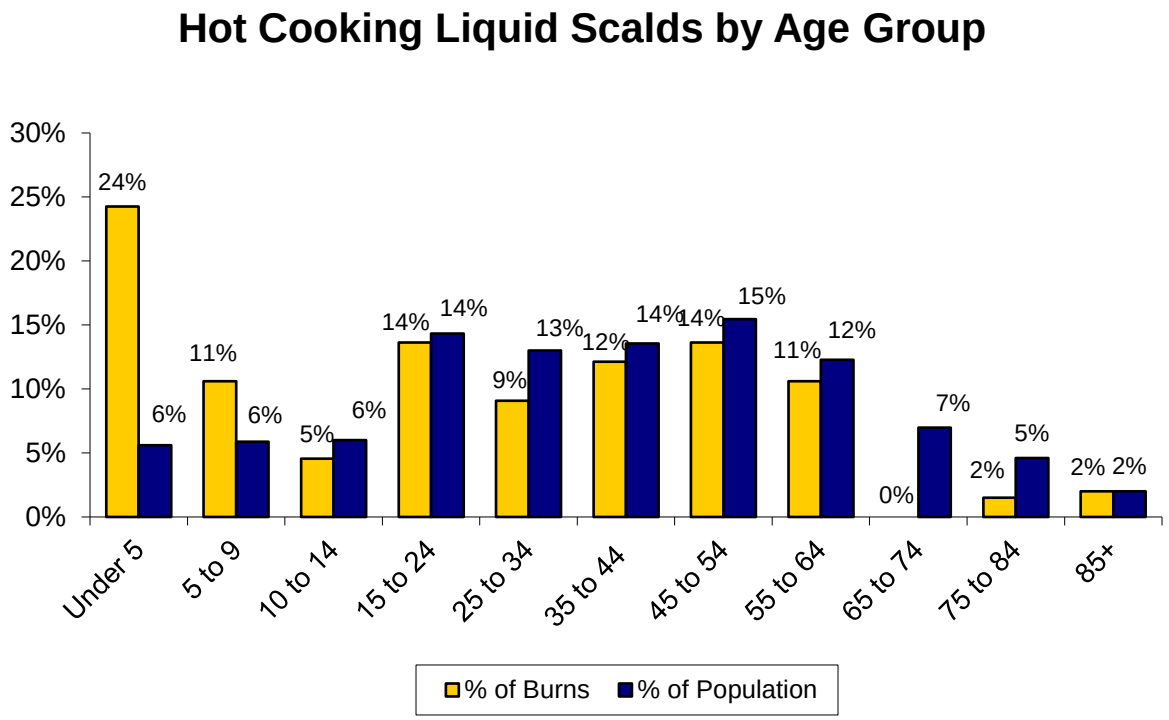
63-Year Old Man Receives Scald from Hot Tap Water
On May 25, 2016, a 63-year old man received burns to 40% of his body surface area when he was scalded by hot water in the shower.

Hot Cooking Liquids

Hot Cooking Liquids Caused 38% of Scalds, 18% of All Burns
Scald burns from hot cooking liquids were the leading cause of all burn injuries. Hot cooking liquids, which includes boiling water, grease and oil, caused 66, or 38%, of the 175 scald burns and 18% of the 375 total burn injuries reported in 2016. Thirty-three percent (33%) of the victims were female and 67% were male. Hot cooking liquids scalded 10 people while they were at work, seven victims were men and three were women.

[3]In 1999, and from 2005 – 2008 and 2010 - 2016, cooking liquids were the leading cause of scald burns. From 1984 – 1998, 2000 – 2004 and in 2009, hot beverage scalds were the leading cause.

24% of Cooking Liquid Scald Victims Were Under 5
Those most likely to be under foot in the kitchen were most at risk to be burned by hot liquids on the stovetop. In 2016, 24% of the cooking liquid scald victims were under five years old. They were 4.3 times more likely to be victims of a hot cooking liquid scald. This risk is most likely attributed to children getting in the way of adults as they prepare meals. Establishing a "No Zone" in the kitchen and putting toddlers safely in high chairs or playpens during meal preparation can reduce these injuries.



5-Year Old Girl Scalded by Cooking Liquids at Home
On March 6, 2016, a 5-year old girl was scalded by boiling water when she pulled a pot of boiling water on herself. She received burns to approximately 20% of her body surface area.

63-Year Old Man Scalded by Cooking Liquids
On June 15, 2016, a 63-year old man was scalded at home by cooking grease. He received burns to approximately 33% of his body surface area.

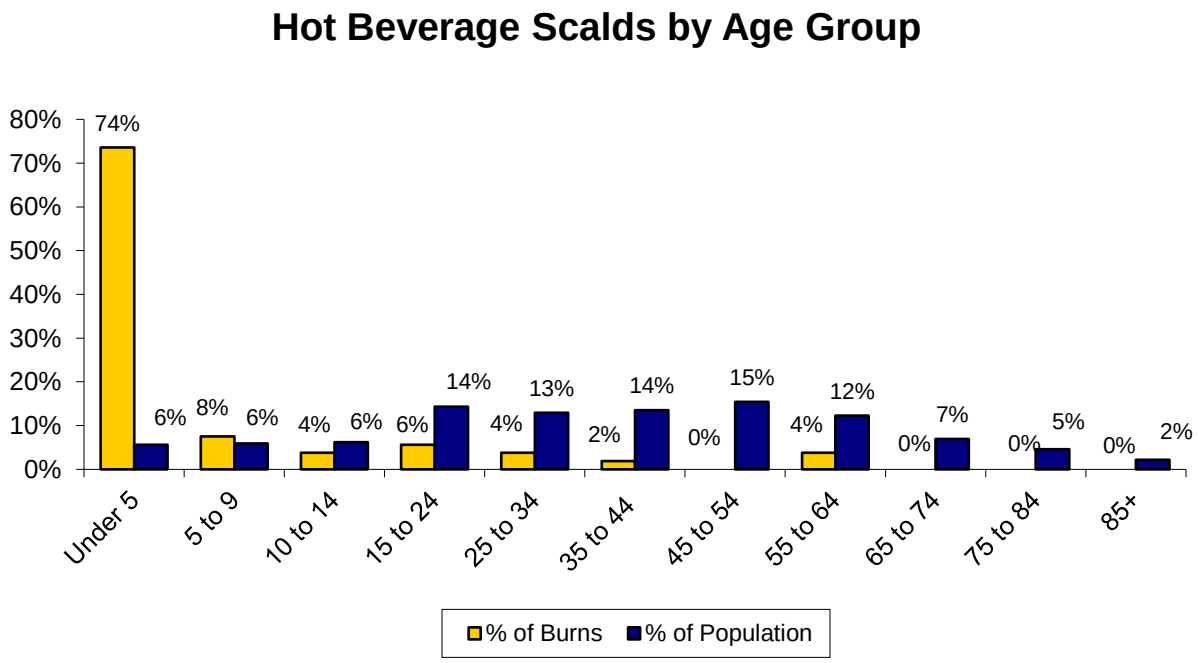
Hot Beverages

Hot Beverages Caused 30% of All Scalds
Fifty-three (53), or 30%, of the 175 scald burns were caused by hot beverages. They accounted for 14% of the 375 total burn injuries. Hot beverages have historically been the leading cause of

scald burns since the inception of M-BIRS in 1984, except for 1999 and 2005 to 2008. Since 2010 they have been the second leading cause of scald burns.

Fifty-one percent (51%) of the hot beverage scald victims were male and 49% were female. In 2016, two women and one man were reported to have received a hot beverage scald while working.

74% of the Hot Beverage Scald Victims Were Under 5
Thirty-nine (39), or 74%, of all hot beverage scald victims were under five years old.



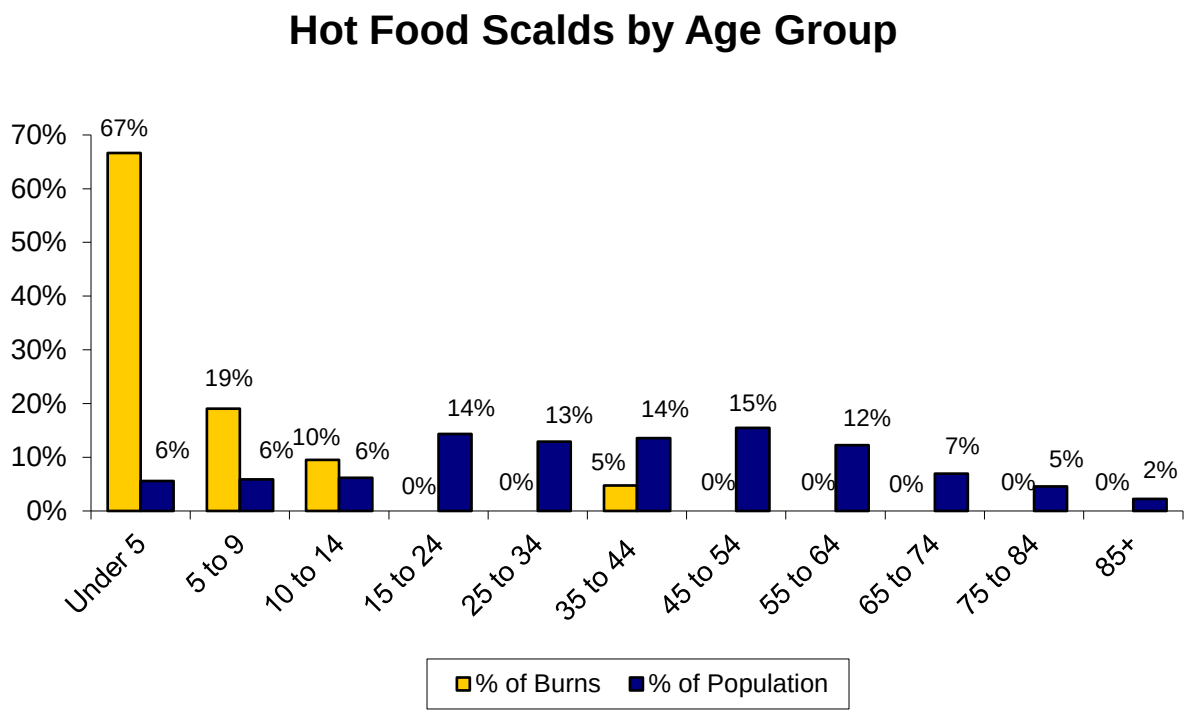
1-Year Old Scalded by Beverage
On January 8, 2016, a 1-year old boy spilled a cup of hot coffee on himself. He received scald burns to 9% of his body surface area.

2-Year Old Girl Scalded by Beverage
On January 24, 2016, a 2-year old girl was burned by hot tea when her 4-year old brother spilled it on her. She received scald burns to approximately 10% of her body surface area.

Hot Food

Hot Food Caused 12% of Scalds, 6% of All Burns
Hot food caused 21, or 12%, of the 175 scald burns and 6% of the 375 total burn injuries reported in 2016. Fifty-two percent (52%) of the victims were female and 48% were male. There were no work-related hot food scalds reported in 2016.

86% of Hot Food Scald Victims Were Under 10
Of the 21 reported scald victims from hot food in 2016, 18, or 86%, were under the age of ten. Fourteen (14), or 67%, were under five years old and four victims, or 19%, were between five and nine.



6-Year Old Girl Receives Scald Burns from Food
On April 14, 2016, a 6-year old girl received scald burns to 8% of her body surface area when her sister accidentally knocked a pot of pasta on her.

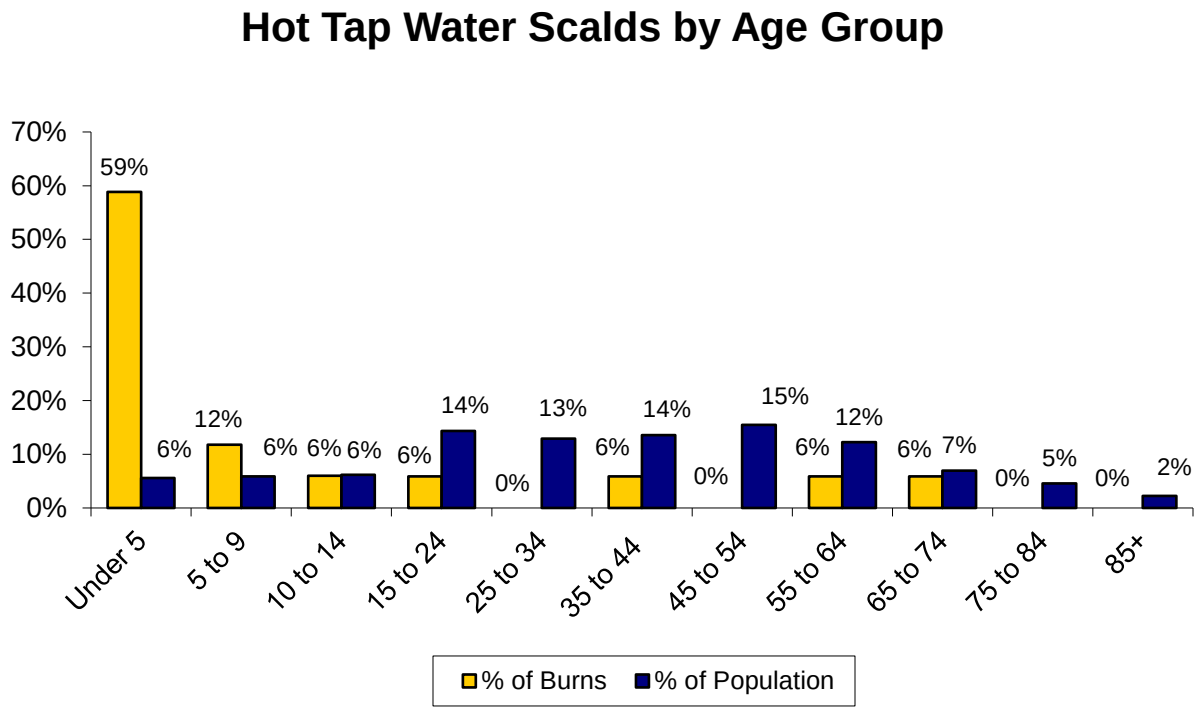
Hot Tap Water

Hot Tap Water Caused 10% of All Scalds & 5% of All Burns
Excessively hot tap water caused 17, or 10%, of the 175 scald burns and 5% of the 375 total burn injuries reported to M-BIRS in 2016. Hot water heaters should be set to temperatures of 125º Fahrenheit or less. Massachusetts law states that the temperature must be set between 110º and 130º F and most dishwashers have coils to boost their internal water temperature. It is important for homeowners to make sure their own water heaters are set in the appropriate range. At 155º F it takes only one second to sustain a third degree burn. At 130º F it takes thirty seconds. At 120º F it can take a full five minutes to sustain a third degree burn.[3] Adults may prepare a safe bath, but a child may turn on the hot water if left alone for a moment or two. Experts recommend placing a child in the tub facing away from the faucet.

[3] Source: Knapp Burn Foundation

In 2016, 88% of the victims were male and 12% were female. There were no work-related hot tap water scald burns in 2016.

Over 1/2 of Tap Water Scald Victims Were Under the Age of 5
Fifty-nine percent (59%), or 10 of the 17 hot tap water scald victims, were less than five years old. Some were very young infants placed in water that was too hot for their sensitive skin. Other children were interested in exploring their environment and turned on faucets.



2-Month Old Boy Scalded by Tap Water
On November 9, 2016, a 2-month old boy was scalded over 26% of his body surface area by hot tap water during a bath.

69-Year Old Man Scalded in Bath
On April 28, 2016, a 69-year old man was scalded by hot water in a bath. He was burned over 21% of his body surface area.

Flame Burn Injuries

Flames Caused 19% of Reported Burn Injuries
There were 71 reported flame burn injuries. These 71 injuries accounted for 19% of the 375 burn injuries reported in 2016. A burn is said to result from flame when the fire is confined to the victim or the victim's clothing. When a wider area burns, the cause of the injury is considered a

fire. Burns caused by self-immolation, smoking in bed or burning clothing usually result from flames.

Seventy-three percent (73%) of the flame burn casualties were male and 27% were female. Seven (7), or 10%, of the flame burns occurred during work-related activities; all seven victims were men.

Cooking Was the Leading Cause of Flame Burns

Cooking was the leading cause of flame burn injuries in 2016. Twenty-three (23), or 32%, of all flame burn victims received their injuries while cooking. Ignitable liquids was the second leading cause of flame burns causing 16, or 16%, of these burn injuries.

Description	# of Burns	% of Flame Burns
Cooking	23	32%
Cooking Liquids	8	11%
Coo/k/clothes	4	6%
Stove	4	6%
Cook	3	3%
Oven	2	3%
Barbeque	1	2%
Cooking	1	2%
Ignitable Liquids	16	23%
Gasoline	11	15%
Ignitable Liquids	5	8%
Ignitable Gases	7	10%
Natural Gas	2	6%
Propane	2	6%
Gas Stove	2	6%
Gas	1	5%

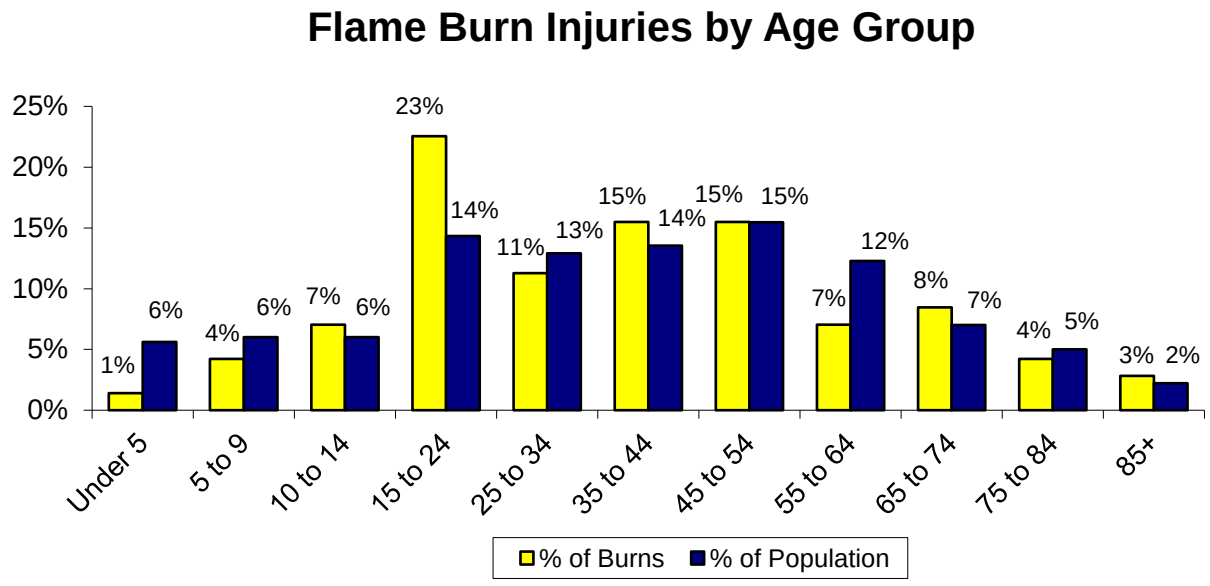
Description	# of Burns	% of Flame Burns
Smoking	5	7%
Smoke Oxygen	2	5%
Cigarette	1	1%
E-Cigarette	1	1%
Smoking/clothes	1	1%
Candle	4	6%
Alcohol	3	4%
Heater	3	4%
Boiler	1	1%
Furnace	1	1%
Heater	1	1%
Child play	2	3%
Assault	2	3%
Battery	1	1%
Child /matches	1	1%
Clothes	1	1%
Aerosol	1	1%
Flashburn	1	1%
Machine	1	1%
Total	71	100%

Young Adults 15 to 24 Had Most Flame Burns

Young adults between the ages of 15 to 24 had 16 reported flame burn injuries and adults between 34 and 44 and 45 and 54 each had 11 reported flame burn injuries.

Age	# of Burns	% of Burns	% of Population
Under 5	1	1%	6%
5 to 9	3	4%	6%
10 to 14	5	7%	6%
15 to 24	16	23%	14%
25 to 34	8	11%	13%
35 to 44	11	15%	14%
45 to 54	11	15%	15%
55 to 64	5	7%	12%
65 to 74	6	8%	7%
75 to 84	3	4%	5%
85+	2	3%	2%
Total	71	100%	100%

Young Adults 15 to 24 Faced Higher Risk of Flame Burns
Five (5) groups were at a higher risk for burns from flames. Children between 10 and 14 (1.2 times); young adults between the ages of 15 to 24 (1.6 times); adults between 35 and 44 (1.1 times); older adults between the ages of 65 to 74 (1.2 times); and older adults over the age of 85 (1.3 times) were all more likely to receive a flame burn injury.



29-Year Old Man Burned by Gasoline
On April 8, 2016, a 29-year old man received flame burn injuries to 30% of his body surface area. He was pouring gasoline into a space heater which ignited.

50-Year Old Man Burned While Smoking on Home Oxygen
On March 17, 2016, a 50-year old man was severely burned while smoking when using home oxygen. He received burns to 45% of his body surface area.

10-Year Old Boy Burned Playing with Matches
On August 15, 2016, a 10-year old boy was burned when he ignited his clothing while playing with matches. He received flame burn injuries to 10% of his body surface area.

14-Year Old Boy Burned by Candle
On February 14, 2016, a 14-year old boy was burned when a candle ignited his clothing. He received flame burn injuries to 20% of his body surface area.

Clothing Ignitions

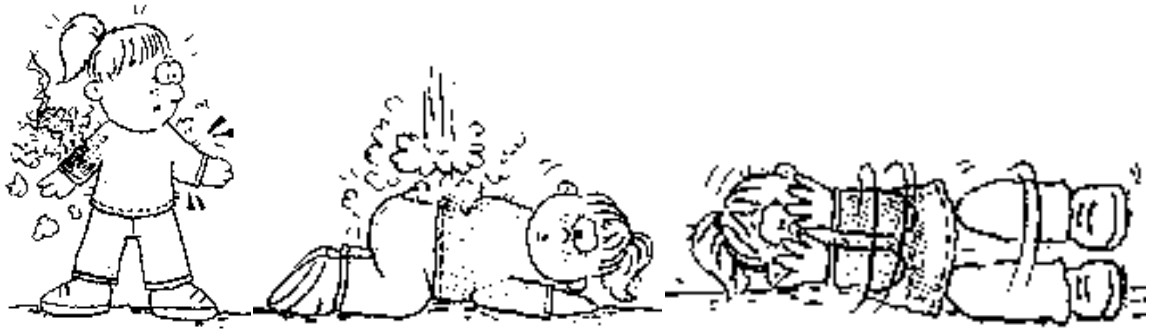
Clothing Ignitions Account for 21% of Flame Burn Injuries
There were 15 clothing ignitions resulting in flame burn injuries that accounted for 21% of all flame burn injuries. Cooking was the primary cause of the injury in nine of these injuries.

Clothing Ignitions	# of Flame Burns	% of All Flame Burns
Cooking	9	13%
Candle	2	3%
Child w/matches	1	1%
Propane	1	1%
Smoking	1	1%
Not reported	1	1%
Total	15	21%

35-Year Old Woman Severely Burned by Clothing Ignition While Cooking
On March 5, 2016, a 35-year old woman was burned when the gas stove she was cooking on ignited her clothes. She received severe burns to approximately 20% of her body surface area.

ALWAYS REMEMBER TO:

STOP DROP COVER & ROLL



Burn Injuries Caused by Fires

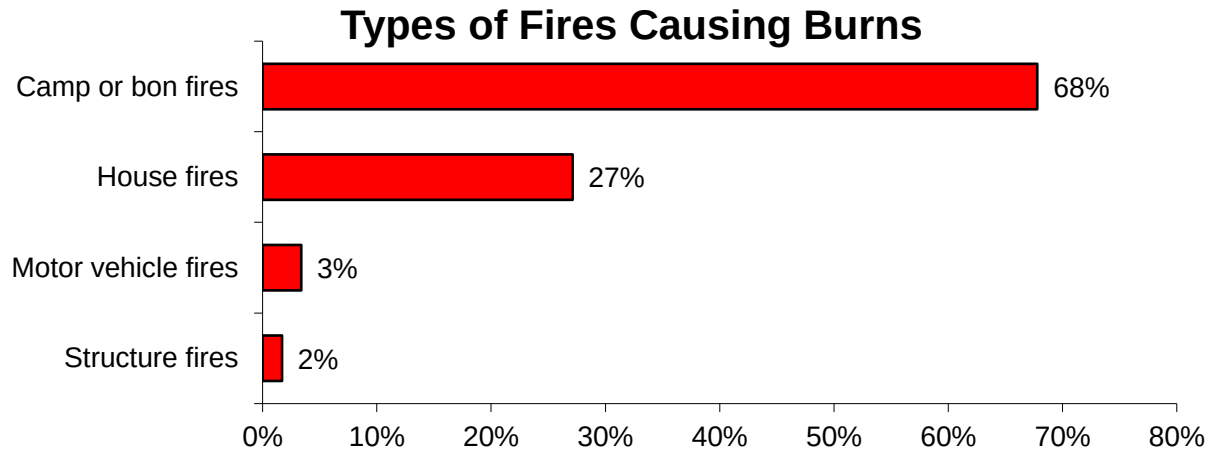
Fires Caused 16% of All Burn Injuries
Fifty-nine (59), or 16% of the 375 burn injuries reported in 2016 were caused by fires. This is a 16% decrease from the 70 fire burns reported the previous year. The highest number of burn injuries from fire were the 96 burn injuries in 2003, excluding the 26 burn victims from the fire at The Station nightclub who were treated in Massachusetts.

Sixty-three percent (63%) of the 59 victims were male and 37% were female. Analysis of data from the Massachusetts Fire Incident Reporting System found that the majority of fire injuries occurred while the victim was escaping or attempting to control the fire and that men are more likely than women to attempt to control the fire and become injured[4].

59% of Fire Burn Injuries Occurred at Camp or Bonfires
Camp or bonfires caused 40, or 68% of the 59 fire burn injuries reported in 2016. House fires caused 16, or 27%.

Fire Type	Description of Burn	# of Burns	% of Total
House fire	House fire	10	17%
House fire	Candle	2	3%
House fire	Barbeque Gas	1	2%
House fire	Electrical	1	2%
House fire	Gas	1	2%
House fire	Smoking	1	2%
House fire		16	27%
Structure fire	Structure Fire	1	2%
Structure fire		1	2%

Fire Type	Description of Burn	# of Burns	% of Total
MV fire	Car Fire	2	3%
MV fire		2	3%
Camp or bon fire	Camp Fire	22	37%
Camp or bon fire	Gasoline	9	15%
Camp or bon fire	Bonfire	4	7%
Camp or bon fire	Ignitable Liquids	3	5%
Camp or bon fire	Child Gasoline	1	2%
Camp or bon fire	Embers	1	12%
Camp or bon fire		40	68%
Total Fires		59	100%

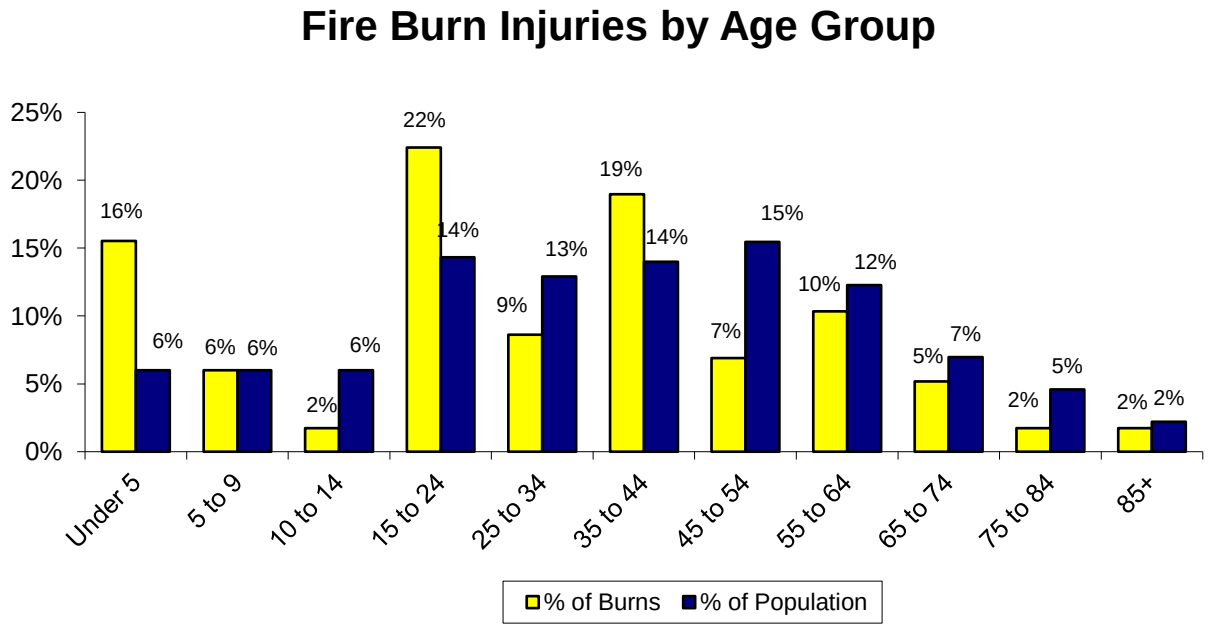


[4] 2016 Annual Report of the Massachusetts Fire Incident Reporting System, MA Dept. of Fire Services, pg. 111.

Young Children & Young Adults Most Likely to Be Burned in Fires
Children under the age of five, young adults between the ages of 15 and 24 years old had 13 reported burns from fires; and adults between the ages of 35 and 44-years old had 11 burn injuries from fires.

Age	# of Burns	% of Burns	% of Population
Under 5	9	16%	6%
5 to 9	4	6%	6%
10 to 14	1	2%	6%
15 to 24	13	22%	14%
25 to 34	5	9%	13%
35 to 44	11	19%	14%
45 to 54	4	7%	15%
55 to 64	6	10%	12%
65 to 74	3	5%	7%
75 to 84	1	2%	5%
85+	1	2%	2%
Total Known	58	100%	100%
Not Reported	1		

Children under the age of five were more than twice (2.6) as likely to be burned in fires. Young adults between 15 and 24 and adults between 35 and 44 were more likely (1.6 and 1.4 times) to be burned in a fire.



Reported Burns Are a Fraction of Injuries from Fires
Only burn injuries that extend to 5% or more of the body surface area and are treated by a medical professional are reported to the *Massachusetts Burn Injury Reporting System*. Consequently, the human cost of fires is under-reported in this analysis. Smoke inhalation, cuts, fractures and less severe burns incurred while fighting or fleeing the fire are not recorded here. Most fire deaths are not recorded in M-BIRS; only the severely burned who survive for a period of time and die later in a hospital are reported. Properly maintained smoke alarms and quick-response residential sprinklers could prevent many of the injuries caused by fires. Alarms sound an early warning to leave the area and quick-response sprinklers can control or possibly extinguish a fire in its earliest stages, thus preventing injuries.

Refer to MFIRS Annual Report for More Information about Fires
For more information about the causes of fires and fire-related casualties, please refer to the *Massachusetts Fire Incident Reporting System – Annual Reports*. Using data collected by the Massachusetts Fire Incident Reporting System (MFIRS), these reports examine the causes of fires, fire deaths and fire injuries. Information is provided on fires in different occupancies and on special topics such as children and fire, fires caused by smoking, electrical fires, cooking fires and heating equipment fires.

3 Fire Deaths Recorded in M-BIRS
Three (3) of the victims that were reported to have received their burn injuries from fires died as a result of their injuries. All three of the victims were Massachusetts residents and died in residential fires.

42-Year Old Man Killed in House Fire
On January 19, 2016, a 42-year old Scituate man was killed in an electrical fire at home. He received burns to 30% of his body surface area. He was transported to the hospital where he succumbed to his injuries.

84-Year Old Man Killed in House Fire
On November 28, 2016, an 84-year old Tewksbury man was killed in a smoking fire at home. He had burns to approximately 39% of his body surface area. He was transported to a local hospital where he succumbed to his injuries.

72-Year Old Man Dies in House Fire
On December 8, 2016, a 72-year old Pittsfield man died in a house fire. He had burns to his face, neck, abdomen and right leg. He was rescued by firefighters and transported to a local hospital where he succumbed to her injuries.

Other Fire Anecdotes
68-Year Old Man Gets Life-threatening Burns in House Fire
On October 5, 2016, a 68-year old Pittsfield man sustained life-threatening burn injuries to over 25% of his body. The fire was started by a candle.

66-Year Old Woman Injured in House Fire
On January 3, 2016, a 66-year old woman was burned over 50% of her body surface area in an apartment fire.

19-Year Old Man Injured in Bon Fire
On April 2, 2016, a 19-year old man received severe burns to 60% of his body when someone added gasoline to a bon fire.

64-Year Old Man Injured in Outside Fire
On July 1, 2016, a 66-year old man was injured when he fell into his fire pit. He received severe burns to 60% of his body surface area.

2-Year Old Girl Injured in Outside Fire
On September 3, 2016, a 2-year old girl was injured when she fell into an open fire pit. She received burns to over approximately 20% of her body surface area.

Burn Injuries Caused by Explosions

Explosions Caused 9% of Reported Burn Injuries
Thirty-two (32), or 9%, of the 375 burn injuries reported in 2016 were caused by explosions. Ninety-one percent (91%) of the explosion burn victims were male and 9% were female. Five (5) of the explosion burn injuries involved fireworks.

Nine (9) burns, or 28%, occurred during work-related activities. All nine of these work-related victims were men.

Gasoline and Fireworks Were the Leading Cause of Explosion Burn Injuries
Gasoline caused six explosion-related burn injuries and fireworks accounted for five of the explosion-related burn injuries in 2016.

Description	# of Burns	% of Explosion
Gasoline	6	19%
Fireworks	5	16%
E-Cigarette	4	13%
Chemical	4	13%
Cooking	3	9%
Barbeque Gas	2	6%
Stove	1	3%
Battery	2	6%

Description	# of Burns	% of Explosion
Smoking	1	3%
Lawn Mower	1	3%
Gas Stove	1	3%
Explosion	1	3%
Electrical	1	3%
Hot Beverage	1	3%
Appliance	1	3%
Aerosol	1	3%
Total	32	100%

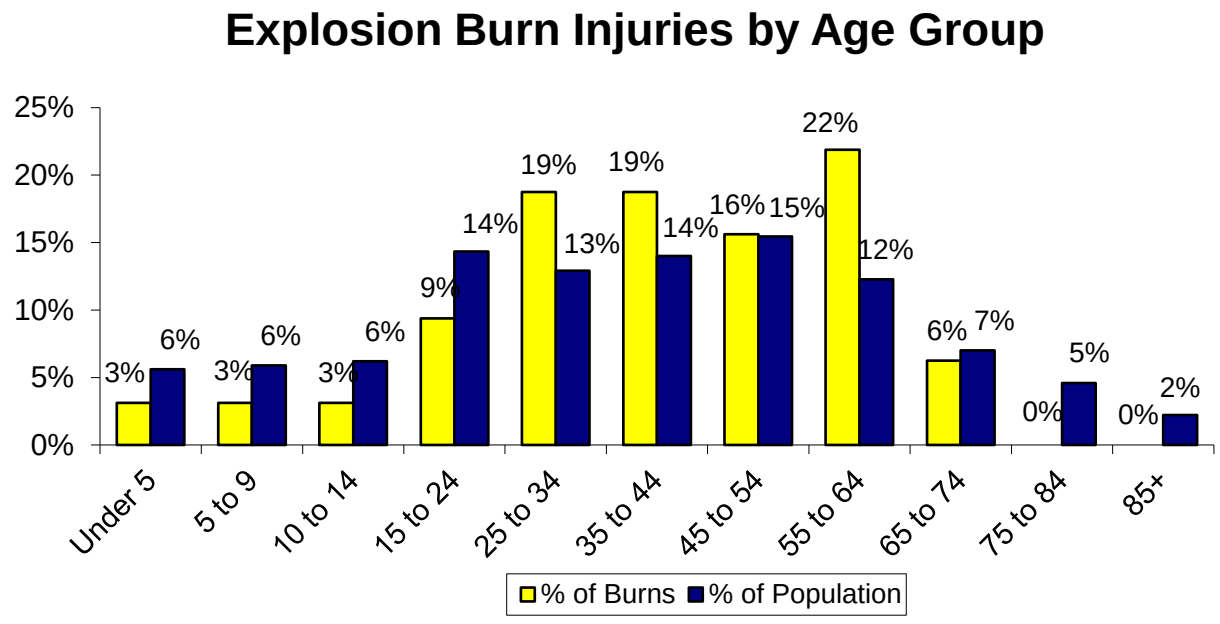
Adults Have Most Explosion Burns

Adults between the ages of 55 and 64 had the most explosion-related burn injuries with seven and accounted for 22% of these burn injuries. Adults between the ages of 25 and 34 and 35 and 44 each had the second most burn injuries from explosions with six, accounting for 19%.

Age	# of Burns	% of Burns	% of Population
Under 5	1	3%	6%
5 to 9	1	3%	6%
10 to 14	1	3%	6%
15 to 24	3	9%	14%
25 to 34	6	19%	13%
35 to 44	6	19%	14%
45 to 54	5	16%	15%
55 to 64	7	22%	12%
65 to 74	2	6%	7%
75 to 84	0	0%	5%
85+	0	0%	2%
Total	32	100%	100%

Adults Face Greatest Risk of Explosion Burns

Adults between 25 and 34 (1.5 times), 35 and 44 (1.3 times) and 55 and 64 (1.8 times) were more likely to be burned in an explosion in 2016.



32-Year Old Man Injured in a Transformer Explosion

On April 17, 2016, a 32-year old man was burned by a transformer explosion while he was working. He received burns to approximately 30% of his body surface area.

20-Year Old Injured by E-Cigarette
On May 24, 2016, a 20-year man received 2nd degree burns to 20% of his body surface area, when his e-cigarette vaporizer exploded in his pants pocket.

34-Year Old Man Injured by Fireworks
On July 4, 2016, a 34-year old man received burns to his chest and hands when the fireworks he was holding exploded in his hand right after he lit the fuse.

68-Year Old Man Injured by Gas BBQ Explosion
On May 14, 2016, a 68-year old man was injured when his gas grill exploded. He received burns to 17% of his body surface area.

Contact Burn Injuries

Contact with Hot Objects Caused 4% of Reported Burn Injuries
Fourteen (14), or 4%, of the 375 burn injuries reported in 2016 were caused by contact with hot objects. Fifty-seven percent (57%) of the burn victims were male and 43% were female. There were three reports of contact burns that occurred at work in 2016. All three of the victims were male.

Embers Was the Leading Cause of Contact Burns
Contact with embers caused three, or 21%, of the contact burns in 2016. Asphalt, cooking and heating equipment tied as the second leading cause of contact burn injuries with two apiece.

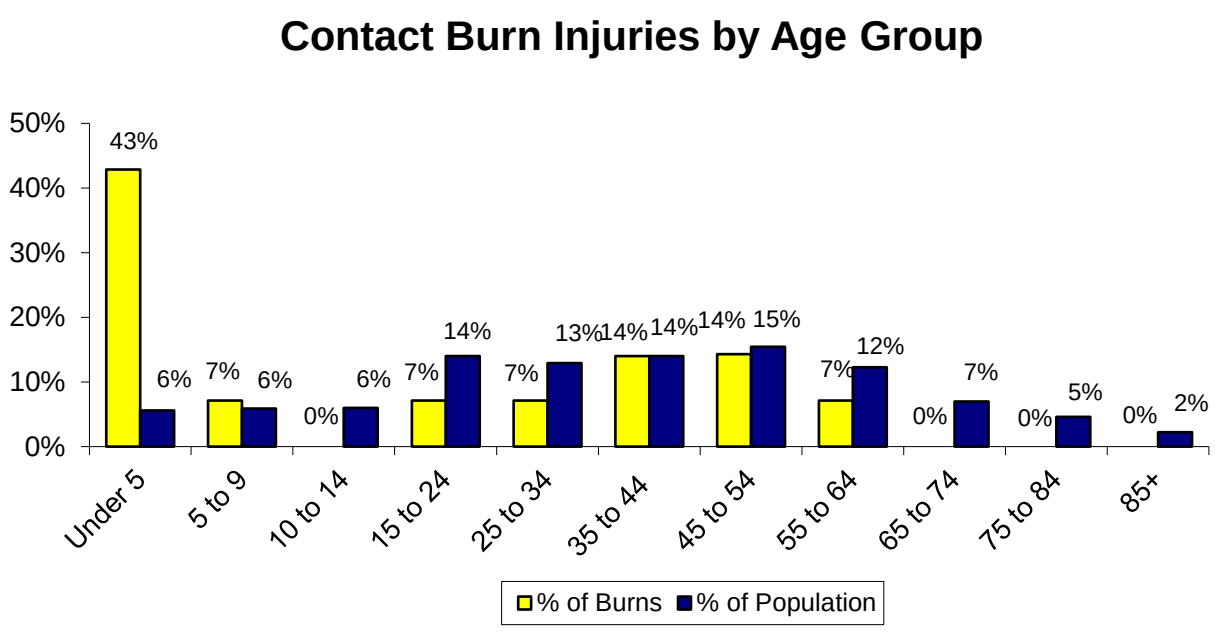
Description	# of Burns	% of Contact burns
Embers	3	21%
Asphalt	2	14%
Asphalt	1	7%
Pavement	1	7%
Cooking	2	14%
Cooking Unspec.	1	7%
Cooking Liquids	1	7%

Description	# of Burns	% of Contact burns
Heating	2	14%
Radiator	1	7%
Woodstove	1	7%
Car Part	1	7%
Contact	1	7%
Clothes Iron	1	7%
Wax	1	7%
Warmer	1	7%
Total	14	100%

43% of Contact Burns Were to Children Under 5
Children under the age of five accounted for six, or 43%, of all contact burns.

Age	# of Burns	% of Burns	% of Population
Under 5	6	43%	6%
5 to 9	1	7%	6%
10 to 14	0	0%	6%
15 to 24	1	7%	14%
25 to 34	1	7%	13%
35 to 44	2	14%	14%
45 to 54	2	14%	15%
55 to 64	1	7%	12%
65 to 74	0	0%	7%
75 to 84	0	0%	5%
85+	0	0%	2%
Total	14	100%	100%

Pre-schoolers faced 7.6 times the risk of contact burns. This disproportionate risk could be the result of young children exploring their environment and underscores the need for constant supervision of toddlers.



48-Year Old Gets Pavement Burns
On February 1, 2016, a 48-year old man received contact burns to 50% of his body. He was dragged by a car for 3 miles and suffered pavement burns.

3-Year Old Girl Burned by Embers
On September 8, 2016, a three-year old girl was burned when she fell into embers of a camp fire. She received burns to approximately 10% of her body surface area.

Other Types of Burn Injuries

Other Type Burns Cause 14 Injuries

In 2016, there were 14 burn injuries that were characterized as *Other*. These 14 injuries caused 4% of all 2016 burn injuries. Ten (10) *Other* burns, or 71%, were attributed to exposure to chemicals. Sunburns caused two, or 14%, and molten metal and cooking liquids each caused one, or 7% of *Other* burns.

Description	Total # of Burns	% of Other Burns
Chemical	10	71%
Sunburn	2	14%
Metal	1	7%
Cooking Liquids	1	7%
Total Other Burns	14	100%

All 14 victims were male. Health care facilities reported that eight, or 57% of the 14 *Other* burn victims were working when injured. Exposure to chemicals caused seven of the eight work-related injuries.

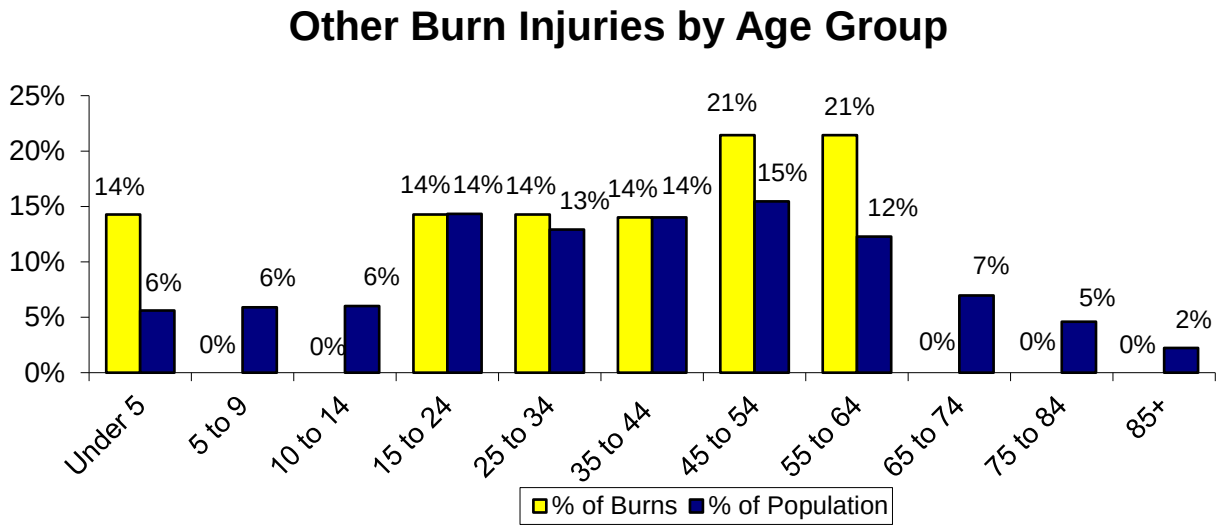
All of *Other* Burn Victims Were Between 1 & 63 Years Old

In 2016 all of the *Other* burn victims were between one and 63 years old.

Age	# of Burns	% of Burns	% of Population
Under 5	2	14%	6%
5 to 9	0	0%	7%
10 to 14	0	0%	7%
15 to 24	2	14%	13%
25 to 34	2	14%	15%
35 to 44	2	14%	17%
45 to 54	3	21%	14%
55 to 64	3	21%	9%
65 to 74	0	0%	7%
75 to 84	0	0%	5%
85+	0	0%	2%
Total	14	100%	100%

Young to Middle Aged Adults at Higher Risk

In 2016 there were six age groups that reported an *Other* type of burn injury. Four (4) age groups were at a higher risk for these types of burns: children under five (2.5 times), 25 to 34 (1.1 times), 45 to 54 (1.4 times) and 55 to 64 (1.7 times).



38-Year Old Man Burned by a Chemical
On August 38, 2016 a 38-year old man received chemical burns to approximately 20% of his body surface area when he was accidentally sprayed by 93% sulfuric acid while at work.

49-Year Old Man Gets Sunburned
On July 17, 2016 a 49-year old man received a sunburn to approximately 30% of his body.

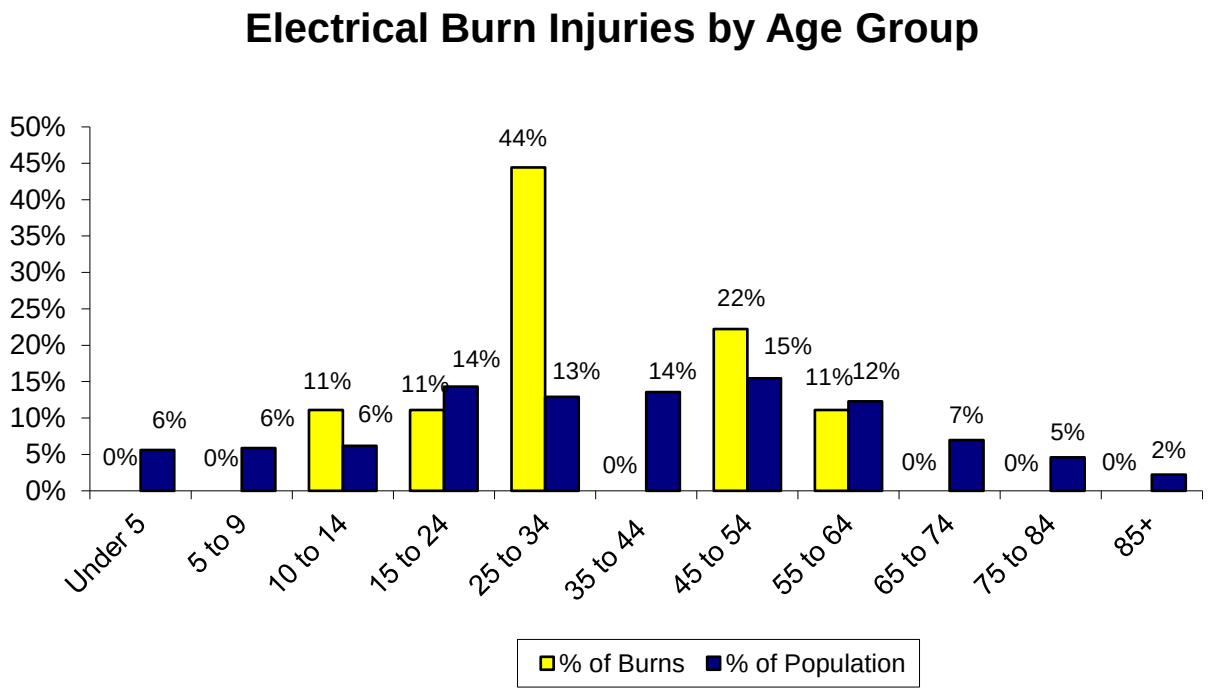
Electrical Burn Injuries

9 Electrical Incidents
Nine (9), or 2%, of the 375 burn injuries reported in 2016 were caused by electrical accidents. Eight (8) of the electrical burn victims were men; and one was a woman. Six (6) of these burns occurred during work-related activities. All six victims were men

7 Electrical Burns Were Electrocutions
Seven (7) of the 2016 electrical burns were caused by electrocution. One (1) was caused by a flashburn and another was an unspecified electrical burn.

Description	# of Burns	% of Electrical Burns
Electrocution	7	78%
Flashburn	1	11%
Electrical	1	11%
Total Electrical Burns	9	100%

44% of Electrical Burn Victims Were 25 to 34
In 2016 there were no electrical burn victims under 12-years old. One (1) victim was between 10 and 14; one victim was between 15 and 24, four victims were between 25 and 34, two victims were between 45 and 54 and the other victim was between 55 and 64 years old.



30-Year Old Man Electrocuted at MBTA Station
On August 9, 2016, an approximately 30-year old man received electrical burns to 20% of his body surface area when he fell on the 3rd rail and was electrocuted at the Park Street T station.

57-Year Old Man Electrocuted at Work
On May 28, 2016, a 57-year old man received electrical 2nd degree burns to 24% of his body when the power line he was working on ignited causing a flashburn.

Burn Injuries from Domestic Violence

1 Burn Injury from Domestic Violence Incidents
One (1), or 0.3%, of the 375 burn injuries reported in 2016 was caused by domestic violence. This victim was a 59-year old man and he was by ignitable liquids.

Description	# of Burns	% of Electrical Burns
Ignitable Liquids	1	100%
Total Domestic Violence Burns	1	100%

59-Year Old Man Involved in Domestic Dispute
On June 12, 2016, a 59-year old man's significant other doused him with rubbing alcohol and then lit him on fire. He received burns to 25% of his body surface area.

Gasoline Related Burn Injuries

Gasoline Involved in 7% of Reported Burn Injuries
Gasoline was involved in 27, or 7%, of the 375 burns reported to M-BIRS in 2016. Gasoline was the primary cause of the injury in all 27 of these injuries.

Eleven (11), or 41%, of the burn injuries involving gasoline were flame burn injuries. Ten (10), or 37%, of the gasoline-related burn injuries were caused by fires. Six (6), or 22%, of these injuries was caused by an explosion. Twenty-five (25), or 93%, of the 27 gasoline-related burn victims in 2016 were men, and two, or 7% were women. Two (2), or 7%, of the injuries occurred during work-related activities. One (1), or 4% of the gasoline burn injuries in 2016 was to a child; and 26, or 96% of these injuries occurred to adults.

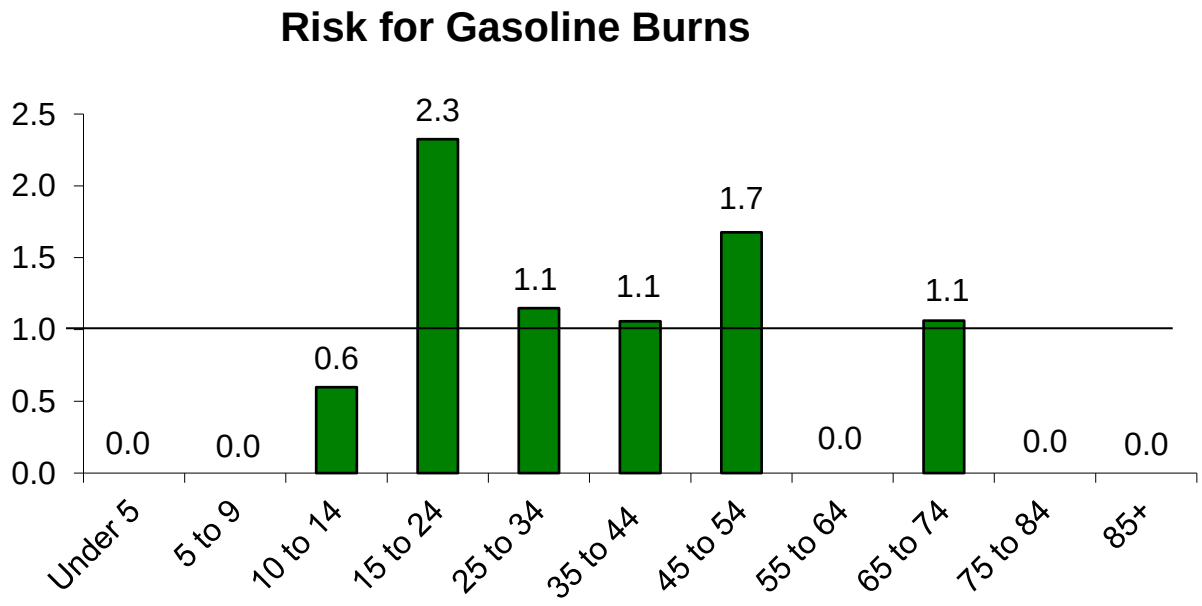
Burn Type	# of Burns	% of Gasoline Burns
Flame	11	41%
Fires	10	37%
Explosion	6	22%
Total Gasoline	27	100%

33% of Gasoline-Related Burn Victims Were Between the Ages of 15 & 24
No one under the age of 12 in 2016 was the victim of a burn injury involving gasoline. Nine (9), or 33%, of the victims were between 15 and 24, and seven, or 26%, were between 45 and 54. The youngest victim was a 12-year old boy and the oldest victim was a 66-year old man.

Age	# of Burns	% of Burns	% of Population	Risk Factor
Under 5	0	0%	6%	0.0
5 to 9	0	0%	6%	0.0
10 to 14	1	4%	6%	0.6
15 to 24	9	33%	14%	2.3
25 to 34	4	15%	13%	1.1
35 to 44	4	15%	14%	1.1
45 to 54	7	26%	15%	1.7
55 to 64	0	0%	12%	0.0
65 to 74	2	7%	7%	1.1
75 to 84	0	0%	5%	0.0
85+	0	0%	2%	0.0
Total	27	100%	100%	

Young Adults 15 to 24 Have Highest Risk for Gasoline Burns

The following graph illustrates the risk factor for gasoline burns by age group. If an age group has a risk factor greater than one it is said that an individual in that age group has a greater risk of being burned by gasoline. If an age group has a risk factor less than one, then individuals in that age group have a lesser risk of receiving any burns involving gasoline. Members of the age group 15 to 24 had the highest risk of getting a gasoline burn. In 2016, adults between the ages of 45 to 54 had the second highest risk of getting a burn involving gasoline.



20-Year Old Man Burned by Gasoline

On August 22, 2016, a 20-year old man received flame burn injuries to 6% of his body surface area. He was pouring gasoline into a leaf blower while he was working and a co-worker lit a cigarette next to him igniting the gasoline and his clothes.

33-Year Old Man Burned Working on Car
On April 19, 2016, a 33-year old man was burned when gasoline ignited while he was working on his car. He received flame burn injuries to 35% of his body surface area.

Some Safety Measures
It is actually gasoline vapors that burn, not the liquid itself. The vapors are generated at very low temperatures, are heavier than air and can travel a distance to find a spark or other ignition source. A spark or lit cigarette is enough to ignite the invisible fumes that may linger on clothing.

- If you must store gasoline, store it outside the home in a detached garage or shed in approved safety cans away from open flames, and out of reach of children.
- Never regularly carry gasoline in your trunk.
- A one-gallon approved container could be carried empty to be used only for emergencies.
- Never add gasoline to any fire or smoldering embers, the vapors spread quickly and ignite explosively.

Burns Caused by Cooking Activities

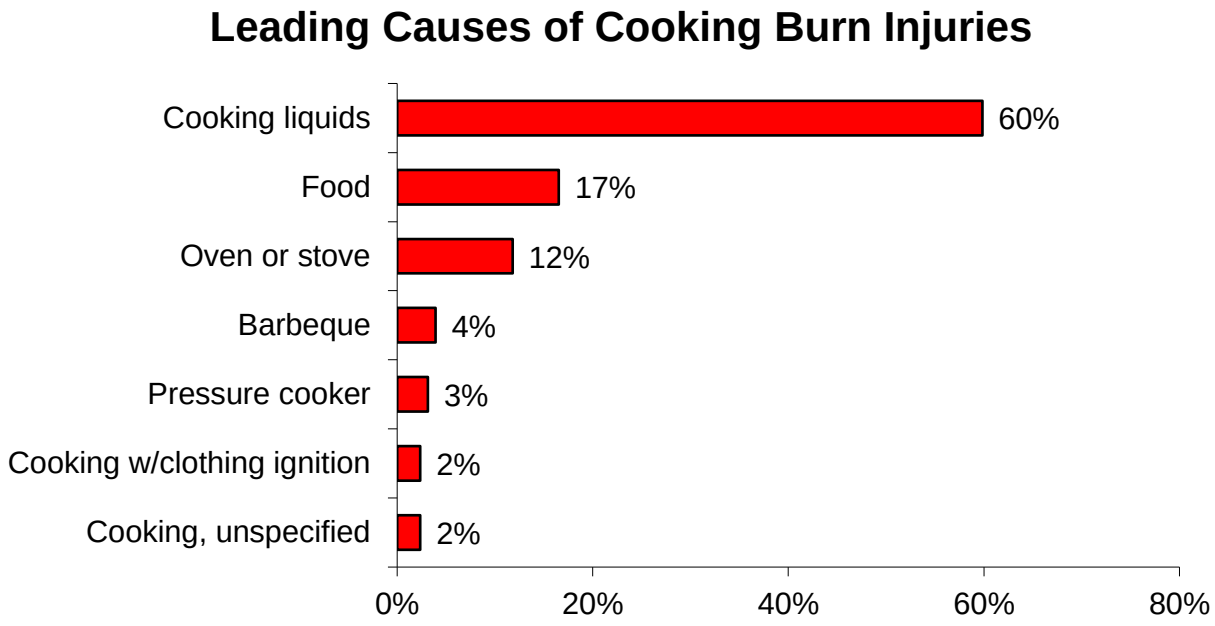
Cooking Caused Over 1/3 of Reported Burn Injuries
Cooking activities caused 127, or 34% of the 375 total burn injuries reported to the Massachusetts Burn Injury Reporting System in 2016. Cooking activities were the primary cause of the injury in 125, or 98% of these injuries. Because of more detailed descriptions as to how burn injuries occurred, it was determined that cooking activities were also involved in two, or 2% of other burn injuries that were coded with a different primary description such as 'natural gas.'

Seventy-nine (79), or 62%, of the 127 victims were male and 48, or 38%, were female. Fifteen (15), or 12%, of the people burned by cooking activities were working when injured. Twelve (12) were men and three were woman.

Scalds Cause 72% of Cooking-Related Burn Injuries
Ninety-two (92), or 72%, of the 127 burn injuries caused by cooking were scalds. Twenty-seven (27), or 21%, were flame burn injuries.

Burn Type	# of Burns	% of Cooking Burns
Scalds	92	72%
Flame	27	21%
Explosion	4	3%
Contact	2	2%
Fire	1	1%
Other	1	1%
Total	127	100%

Cooking Liquids Were the Leading Cause of Cooking-Related Burns
Burns from cooking liquids were the leading cause of all cooking-related burns in Massachusetts in 2016. These burns accounted for 76, or 60% of all cooking-related burn injuries.



Children Under 5 More Almost 4 1/2 Times as Likely to be Burned by Cooking Activities
Thirty-one (31), or 24%, of the cooking-related burn victims were under age five. This age group was 4.4 times more likely to be burned by cooking related activities.

Age	# of Burns	% of Burns	% of Population	Risk
Under 5	31	24%	6%	4.4
5 to 9	12	9%	6%	1.6
10 to 14	7	6%	6%	1.0
15 to 24	17	13%	14%	0.9
25 to 34	9	7%	13%	0.5
35 to 44	17	13%	14%	1.0
45 to 54	13	10%	15%	0.7
55 to 64	14	11%	12%	0.9
65 to 74	3	2%	7%	0.3
75 to 84	2	2%	5%	0.3
85+	2	2%	2%	0.7
Total	127	100%	100%	

The cause of burns varied with age. Pre-schoolers generally do not cook. They do, however, grab pot handles and sometimes get underfoot when adults are cooking. Cooking liquids or cooking grease frequently scalds them. Adults should keep young children at least three feet away from the stove and food preparation areas while they are cooking.

9 Clothing Ignitions while Cooking

Loose-fitting sleeves can easily come into contact with burners and catch fire. In 2016 there were nine reported clothing ignitions while cooking, ranging in age from six to 84 years old. In 2016 there where there were five reported clothing ignitions while cooking.

According to data collected by the Massachusetts Fire Incident Reporting System (MFIRS), unattended and other unsafe cooking practices caused 12,061 fires in 2016. These fires caused one civilian death, 72 civilian injuries, 66 fire service injuries along with $11 million in losses. Many of these people also suffered from smoke inhalation[5].

Serious Burns from Cooking

- On November 6, 2016, a 60-year old man received scald burns to 49% of his body surface area when he was boiling turkey stock.
- On April 12, 2016, a 48-year old man received scald burns to 36% of his body surface area when a pressure cooker seal malfunctioned.
- On November 28, 2016, a 6-year old girl leaned over an open flame on a stove which ignited her shirt. She received flame burn injuries to 30% of her body surface area.
- On March 5, 2016, a 35-year old woman received severe flame burns to 20% of her body surface area when her clothing ignited while she was cooking.

Safety Measures

- ✓ Never leave cooking food unattended.
- ✓ Stand by your pan.
- ✓ Put a lid on stovetop fires, never move the pan.
- ✓ Keep a large pot lid handy to put out stovetop fires.
- ✓ Keep children at a safe distance from all hot items by using playpens, high chairs, etc.
- ✓ Create and enforce a 3-foot **NO** zone around the stove. Do not let children play around the stove or barbeque.
- ✓ Test all heated food before giving it to young children.
- ✓ Keep pot handles turned in over the stove or countertop.
- ✓ Always use oven mitts or potholders.
- ✓ Secure loose sleeves or wear short sleeves while cooking.
- 💣 Never use water on a stovetop grease fire.
- ✓ Read and follow directions when using microwave ovens and other cooking appliances.
- ✓ Children should not be allowed to use cooking or heating appliances until they are mature enough to understand safe-use procedures and tall enough to safely handle items and reach cooking surfaces.
- ✓ If cabinets exist over cooking surfaces use them to store only items that will not be needed during cooking.
- ✓ When barbequing, use only charcoal lighter fluid to start a fire. Once the coals have been ignited, never add more charcoal lighter fuel to the fire; the container may explode in your hand.

[5] 2016 Annual Report of the Massachusetts Fire Incident Reporting System; MA Dept. of Fire Services; pg. 130.

Burn Injuries by Age Group

Two (2) age groups of our population were at a greater than average risk of a burn injury in 2016. Although burn injuries were reported in all age groups, very young children suffer more than their share. Children under the age of five were 4.8 times more likely to suffer a burn injury in Massachusetts. Children aged five to nine were 1.2 times more likely to receive a burn injury in 2016.

Twenty-seven percent (27%) of all burn victims were children under the age of five. One hundred (100) children under age five were seriously burned in 2016.

Age	# of Burns	% of Burns	% of Population	Risk
Under 5	100	27%	6%	4.8
5 to 9	27	7%	6%	1.2
10 to 14	17	5%	6%	0.7
15 to 24	51	14%	14%	1.0
25 to 34	36	10%	13%	0.7
35 to 44	45	12%	14%	0.9
45 to 54	41	11%	15%	0.7
55 to 64	36	10%	12%	0.8
65 to 74	13	3%	7%	0.5
75 to 84	5	1%	5%	0.3
85+	3	1%	2%	0.4
Total	375	100%	100%	

Scald Burns the Leading Type of Burn to Most Age Groups
While scalds remain the leading cause of burn injuries overall, they were also the leading cause of burn injuries to people between 0 and 14 and 25 and 64. Flame burns were the leading cause of burns to the age group between 15 and 24 and to older adults over the age of 65.

To learn more about the specific causes for each age group, please look at the age specific sections within *Burn Injuries by Age Group*.

Causes of Burn Injuries by Age and Gender

The leading causes of burn injuries vary widely between age groups depending on the nature of activities in which people are involved. Children under five are busy exploring their environment and reaching for anything in their grasp. Thirty-nine percent (39%) of the burns incurred by these young children were scalds caused by hot beverages, 16% were caused by cooking liquids, and 14% were caused by scalds from hot food. Cooking liquids, gasoline and other ignitable liquids were frequent causes of burn injuries to older teens and young adults.

Parents of young children must be educated about the danger of scalds from hot beverages, cooking liquids and tap water. Teens and young adults need information about how to cook safely, procedures to follow when a car overheats and the proper uses of gasoline. To be effective, burn prevention educators must develop strategies that address the risk faced by each age group.

Age	Males	Females	Total
Under 5	59	41	100
5 to 9	17	10	27
10 to 14	7	10	17
15 to 24	38	13	51
25 to 34	29	7	36
35 to 44	31	14	45
45 to 54	30	11	41
55 to 64	27	9	36
65 to 74	10	3	13
75 to 84	3	2	5
85+	2	1	3
Total	253	122	375

Except for the age groups of children between the ages of 10 and 14, males were burned more frequently than females. In 2016, 253, or 68% of the 375 burn victims were male, and 122, or 32%, were female.

Children Under 5

27% of Reported Burns Incurred by Children Under 5
One hundred (100), or 27%, of the burn injuries reported to M-BIRS in 2016 were incurred by children under five years old. According to the 2010 U.S. Census, only 6% of Massachusetts residents are under the age of five. Children under five were 4.8 times more likely to be burned than were members of the general population. No other age group faced a risk this high. Fifty-nine percent (59%) of burned pre-schoolers were boys and 41% were girls.

Scalds Caused 81% of Burns to Pre-Schoolers
Scalds caused 81, or 81%, of the burn injuries incurred by children under five. Nine (9) burns to children under five were burns from fires. Contact burns caused six burns, and there were two *Other* type burns to this age group. Flame burns and burns from explosions each caused one burn to children under five in 2016.

Children Ages 5 to 9

7% of Reported Burn Injuries Incurred by Children 5-9 Years of Age
Twenty-seven (27), or 7%, of the burn injuries reported in 2016 were incurred by children between five and nine years of age. Seventeen (17), or 63%, of the burn victims were boys, and 10, or 37%, were girls. Children in this age bracket accounted for 6% of the population of Massachusetts and 7% of the burn injuries in 2016.

Burns from Scalds Were the Leading Cause to Children 5-9
The leading cause of burn injuries to children aged five to nine were scalds. Scalds caused 18, or 67%, of the burn injuries incurred by children aged five to nine in 2016. Burns from fires caused four of these injuries and flame burns caused three. Explosions and contact with a hot object each caused one burn injury to this age group.

Children Ages 10 to 14

5% of Reported Burns Incurred by Children 10-14 Years of Age
Children between the ages of 10 and 14 suffered 17, or 5% of the burn injuries reported in 2016. Ten (10), or 59%, were boys and seven, or 41%, were girls. Children in this age bracket accounted for 6% of the population in the Commonwealth of Massachusetts and 5% of the total reported burn injuries. At this age, children are exploring their environment more on their own, but often without the maturity or experience to reason out cause and effect.

Scalds Were the Leading Cause of Burns to Children 10-14
Scalds caused nine, or 53% of the burns incurred by children aged 10 to 14. Flame burns caused five of these injuries. Burns from fires, electrical burns and explosions each caused one burn injury to this age group.

Ages 15 to 24

14% of Reported Burn Victims Between 15-24 Years of Age
Teens and young adults between the ages of 15 and 24 incurred 51, or 14% of the burn injuries reported in 2016. Thirty-eight (38), or 75%, were male and 13, or 25%, were female. Young adults aged 15 to 24 accounted for 14% of the population of Massachusetts and 15% of the burn injuries in 2016. Eleven (11), or 22%, of the burn injuries incurred by this age group were work-related: eight were male and three were female.

31% of Burns Were Flame Burns
Sixteen (16), or 31%, of the burn injuries to people 15 to 24 years of age were flame burns. Scalds caused 15 injuries. Burns from fires caused 13 injuries. Explosions caused three injuries and *Other* types of burn injuries caused two injuries to this age group. Contact with a hot object and an electrical burn each caused one burn injury to this age group.

Ages 25 to 34

10% of Burns Were to Adults 25-34 Years of Age
Thirty-six (36), or 10% of the burn injuries reported in 2016 were incurred by people between 25 and 34 years of age. Twenty-nine (29), or 81% of the victims were men and seven, or 19% were women. Eleven (11), or 31% of the burn injuries suffered by this age group were work-related; all 11 were men. People between the ages of 25 and 34 accounted for 13% of the population of Massachusetts while accounting for 10% of the total number of burn injuries reported in 2016.

Scald Burns Caused 30% of Burn Injuries
Scalds accounted for 10 burns, or 28% of the burn injuries for this age group. Flame burns caused eight burns and six more injuries came from explosions. Burns from fires caused five of these injuries. Four (4) of the burn injuries to this age group were caused by electrical burns; two were caused by *Other* type burns and one was a contact burn.

Ages 35 to 44

12% of Reported Burn Victims Were Between 35-44 Years of Age
Forty-five (45), or 12%, of the burn injuries reported in 2016 occurred to people between the ages of 35 and 44. This is more than double the previous year when they accounted for only 5%. Thirty-one (31), or 69% of the victims were men and 14, or 31% of the victims were women. Adults between the ages of 35 and 44 accounted for 14% of the Massachusetts population but 12% of the reported burns in 2016. Nine (9), or 20%, of the burn injuries incurred by this age group were work-related. Eight (8) of these work-related burn victims were men, and one was a woman.

Burns from Scalds Were the Leading Cause of Injuries to 35-44 Years of Age
Scalds accounted for 13, or 29%, of the burn injuries to this age group. Burns from fires and flame burns each caused 11 of these injuries. Explosions caused six injuries to this age group and contact with hot objects and *Other* burn injuries each caused two burn injuries.

Ages 45 to 54

11% of Reported Burn Injuries Were to Adults Between 45-54 Years of Age
People between the ages of 45 and 54 incurred 41, or 11%, of the reported burns in 2016. Thirty (30) or 73% of the victims were male, and 11, or 27%, were female. Eleven (11) of the 41 burn victims aged 45 to 54, or 27%, were burned while at work; nine of them were men and two were women. This age group represents 15% of the population of Massachusetts but only 11% of the burn injuries in 2016.

Scalds Burns Were the Leading Cause of Burns
Scalds were incurred by 14, or 34% of the burn victims between the ages of 45 and 54. Eleven (11) of these burns were caused by flame burns and another five by explosions. Fires caused four of these injuries. *Other* burns caused three burn injuries to this age group, and contact with hot objects and electrical burns each caused two injuries to this age group.

Ages 55 to 64

10% of Burn Victims Were Between 55-64 Years Old
Thirty-six (36), or 10% of the burns reported in 2016 were incurred by people between the ages of 55 and 64. Twenty-seven (27), or 75% of the victims were men, and nine, or 25% were women. Seven (7), or 19%, of the 36 burn injuries incurred by people between 55 and 64 years old were work-related; all seven were men. People of this age group represent 12% of the total population of Massachusetts but only received 10% of the burns in 2016.

Scalds Were the Leading Causes of Burns
Scalds caused 12 injuries to people between the ages of 55 and 64 in 2016, accounting for 33% of these injuries. Explosions caused seven of these injuries and fires six. Flame burns caused five injuries and *Other* burns, all chemical, caused three of these injuries. Contact with a hot object, electrical and a domestic violence each caused one burn injury to members of this age group.

Over 65 – Older Adults

21 Burn Victims Over 65 Years Old
Twenty-one (21), or 6%, of the burn victims in 2016 were over 65 years old. Thirteen (13) were between 65 and 74; five were between 75 and 84; and three were 85 years old or older. Fifteen (15), or 71% of the victims were men, and six, or 29%, were women. Older adults represent 14% of the total Massachusetts population but only 6% of the burn injuries in 2016, which means that in 2016 they were proportionately less likely to receive a burn injury. One (1) man of this age group received a work-related burn.

Flame Burns Were Leading Cause of Burns to Older Adults
Flame burns caused 11, or 52%, of the burn injuries to people over the age of 65. Burns from fire caused five of these burns. Scalds caused three and explosions two of these injuries to older adults.

According to the Burn Awareness Coalition, the following scenarios increase the chance of a burn injury for older adults: smoking when tired, drinking alcohol or taking medications which can cause drowsiness, wearing loose fitting clothing while cooking, kitchen fires from unattended cooking, and grease fires on the stove top.

Safety Tips for Older Adults

- Cook with the pot and pan handles turned in.
- Wear clothes with short or tight fitting sleeves and watch for clothes touching elements on the stove.
- Never leave boiling, broiling or frying food unattended.
- Keep stove surfaces clean of built up grease.
- Do not attempt to lift or carry heavy pots of hot liquid or food.
- Do not use a cooking stove for heating purposes or for drying clothes.
- Remember “Stop, Drop, Cover & Roll”: it just may save your life.
- Do not smoke when you are tired, drinking alcohol or taking medications that make you drowsy. If you must smoke, make sure there are working smoke alarms in the immediate vicinity.

Work-Related Burn Injuries

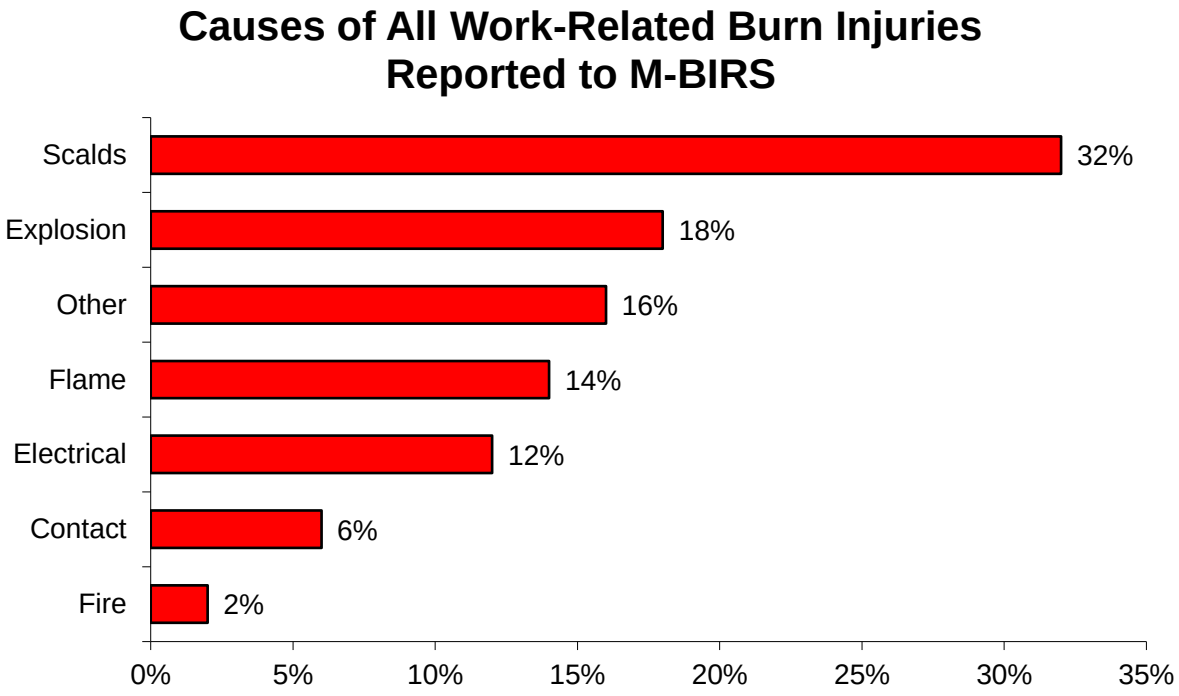
13% of Reported Burns Occurred at Work
Massachusetts hospitals indicated that 50, or 13%, of the 375 burn injuries reported in 2016 occurred while the victim was at work. Men were much more likely to be burned while working than women. Forty-four (44) men, or 88%, and six women, or 12%, were burned at work in 2016.

44% of Work-Related Burns Incurred by People Between 15 and 34
No one under the age of 18 received a work-related burn in 2016. The age groups 15 to 24 and 25 to 34 and 45 to 54 years had the most work-related burns injuries with 11 each. The youngest person to receive treatment for a work-related burn in Massachusetts in 2016 was an 18-year old woman who received a scald burn from a hot beverage. The oldest victim to receive a work-related burn was a 66-year old man who received a burn from a gasoline flame burn.

Age	# of Burns	% of Burns	% of Population
Under 5	0	0%	6%
5 to 9	0	0%	6%
10 to 14	0	0%	6%
15 to 24	11	22%	14%
25 to 34	11	22%	13%
35 to 44	9	18%	14%
45 to 54	11	22%	15%
55 to 64	7	14%	12%
65 to 74	1	2%	7%
75 to 84	0	0%	5%
85+	0	0%	2%
Total	50	100%	100%

Scalds Caused Almost 1/3 of Work-Related Burns
Scalds were the leading cause of work-related burns in 2016. These 16 burn injuries accounted for 32% of work-related burns. Explosions caused nine of these burns. *Other* burns, all but one from chemicals, caused eight of these injuries. Seven (7) of these injuries were flame burns. Electrical burns caused six of these burns. Contact burns caused three and a house fire caused one work-related burn injury.

The following chart shows the breakdown of the causes of all work-related burn injuries reported to M-BIRS regardless of whether they occurred in Massachusetts or not.



86% of Work-Related Burns Reported to M-BIRS Occurred in MA
Most, but not all of the work-related burn injuries treated in Massachusetts occurred in Massachusetts. Forty-three (43), or 86%, of the 50 work-related burns reported to M-BIRS in 2016 occurred in Massachusetts. Four (4) work-related burns reported to M-BIRS occurred in New Hampshire; and it was unknown where three of these burns occurred.

Intervention and Prevention Efforts
The MA Department of Public Health notifies one of the three Occupational Safety and Health Administration (OSHA) area offices about those companies in which an employee is burned as a result of explosions, chemical exposures, electrocutions, or those that appeared to indicate likely violations of OSHA standards. In 2016, 29 burn injuries were referred to OSHA and there were no cases referred to the Department of Labor for public sector cases that met their criteria.

0 Work-related Fatality Due to Burn Injuries
In 2016 there were no work-related injuries that led to the victim's death.

Burn Injuries in the Home

2/3 of Burn Injuries Occur in the Home

The home is the most common place for burn injuries to occur. In 2016, 248 people, or 66%, of all the reported burn injuries took place in the victim's home or surrounding yard. Men sustained the majority of burns occurring at home. One hundred and sixty-three (163) men, or 66%, and 85 women, or 34% were burned at home in 2016.

Over 1/2 of All Home Burns Are Scalds

One hundred and fifty (150), or 56%, of the burn injuries that occurred in the home in 2016 were scalds.

Burn Type	# of Burns	% of Home Burns
Scalds	143	58%
Flame	45	18%
Fire	35	14%
Explosions	13	5%
Contact	7	3%
Other	4	2%
Electrical	1	0.4%
Total	248	100%

Cooking Caused 39% of Burn in Homes

In 2016, cooking activities, other than hot food, caused the most overall burns regardless of burn type. Burns from cooking caused 96, or 39% of burns in Massachusetts homes.

Burn	# of Burns	% of Home Burns
Cooking	96	39%
Hot Beverages	56	17%
Camp or Bonfires	20	8%
Hot Food	20	8%
Hot Tap Water	16	6%
Gasoline	16	6%
House Fires	14	6%

Just Over 1/3 of Home Burns Were to Children Under 5

Thirty-four percent (34%) of the 248 victims that received their burns at home were less than five years old. These children were also six times more likely to be burned at home. This age group has the greatest risk of being burned at home.

Age	# of Home Burns	% of Home Burns	% of Population	Risk
Under 5	84	34%	6%	6.0
5 to 9	18	7%	6%	1.2
10 to 14	12	5%	6%	0.8
15 to 24	27	11%	14%	0.8
25 to 34	20	8%	13%	0.6
35 to 44	26	10%	14%	0.8
45 to 54	17	7%	15%	0.4
55 to 64	26	10%	12%	0.9
65 to 74	12	5%	7%	0.7
75 to 84	4	2%	5%	0.4
85+	2	2%	2%	1.0
Total	248	100%	100%	

3 of the Home Burns Resulted in Death
Three (3), or 1%, of the 248 reported burn injuries that occurred in homes in 2016 resulted in death for the victim. All three of these deaths were men. All three died in house fires.

For more information on all residential fire deaths please refer to the annual reports of the Massachusetts Fire Incident Reporting System (MFIRS). Most victims of fatal fires die immediately and are not reported to or captured by M-BIRS.

Burn Injury Reports by Hospital

Forty-three (43) out of the 97 acute care health care facilities in Massachusetts submitted a total of 418 burn injury reports for 375 victims to the Massachusetts Burn Injury Reporting System (M-BIRS). Some individuals were treated at more than one hospital, resulting in more burn reports than total victims. For information on the number of burn reports submitted by each hospital, please refer to the table *Number of Reported Burn Injuries Per Hospital* in the Appendix.

Law Requires Hospitals to Report Burn Injuries Over 5% of the Body
Massachusetts General Law (MGL) Chapter 112, Section 12A requires all physicians and medical treatment facilities to immediately report treatment of every burn injury extending to 5% or more of a person's body surface area to the State Fire Marshal and to the police department in the community in which the burn occurred.

Hospitals May Fax Reports or Call and Submit Written Reports
Health care facilities have a choice about how to report burn injuries. Health care providers may fax their burn injury reports to the State Fire Marshal at the Department of Fire Services, (978) 567-3199. A completed transmission will satisfy both the telephone and written notification provisions of the law. Hospitals not opting for the fax report method must report burn injuries by telephone at (800) 475-3443 and submit a written report.

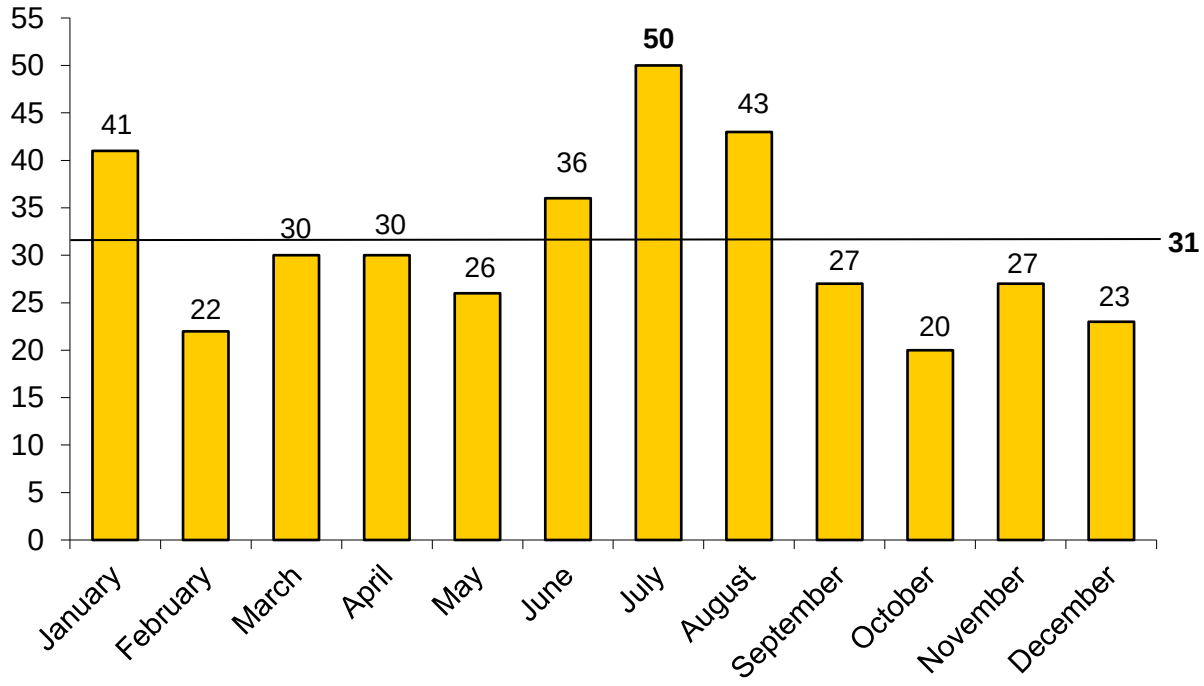
Although M-BIRS was instituted under the Department of Public Safety in June of 1984, Massachusetts hospitals have been required to report burn injuries to a government agency since 1973. M-BIRS, along with the Office of the State Fire Marshal, was carried over to the newly created Department of Fire Services in 1996. It remains a joint program of the state Department of Fire Services and the Massachusetts Department of Public Health.

M-BIRS Has Two Main Purposes — Identifying Arsonists and Burn Prevention
Data collected by the Massachusetts Burn Injury Reporting System is used in several ways. Investigators use the data to determine if an arsonist was treated for a burn that resulted from an attempt to illegally burn a building or vehicle and then attempt to avoid detection by seeking medical treatment far from the crime scene. Our data has also been used to identify problems that need to be addressed through public education or regulation and to develop appropriate strategies. We need to know what type of activity injures who, if the injuries are seasonal, and how old the victims are in order to develop and implement effective prevention programs. We appreciate the efforts of the many dedicated doctors, nurses and clerical personnel who report the burn injuries promptly and completely. They make the program work.

Burn Injuries by Month

Average of 31 Burns a Month
An average of 31 burns was reported during each month of 2016, from a low of 20 in October to a high of 50 in July. It is below the 5-year (2012-2016) average of 32 burns per month and below the 10-year (2007-2016) average of 33 burns per month.

Scalds caused the most burn injuries during all 12 months of the year.



July Was the Peak Month for Burns

July was the peak month for burns in 2016. Fifty (50) burn injuries were reported to M-BIRS during July. Scalds accounted for 18, or 36% of these burns during this month.

Burn Type	# of Burns	% of June Burns
Scalds	18	36%
Explosions	11	22%
Fire	11	22%
Flame	6	12%
Other	3	6%
Contact	1	2%
Total	50	100%

For more information, please refer to the table *Causes of Burn Injuries by Month* in the Appendix.

Geographical Demographics

Massachusetts Burn Victims from 117 Cities and Towns
Massachusetts medical facilities treated 290 residents of 117 Massachusetts cities and towns. Burn victims came from all 14 counties in the Commonwealth in 2016. The largest numbers of reported burn injuries were incurred by residents of Essex, Hampden and Middlesex counties. It appears that some large Boston hospitals (Suffolk County) may have under reported the burns they treated.

Eighty-five (85) burn victims from out-of-state received treatment at Massachusetts facilities. Some of the people were injured while vacationing here; others came to Massachusetts specifically for the availability of specialized treatment of burn injuries.

County	# of Burns
Out of State	85
Dukes	1
Hampshire	2
Nantucket	2
Franklin	3
Berkshire	11
Bristol	11
Barnstable	13
Worcester	21
Plymouth	22
Norfolk	24
Suffolk	34
Middlesex	46
Hampden	47
Essex	53
Total	375
Total MA	290

For information on the number of burn victims from each Massachusetts community, please refer to the table *Burn Injuries by Victim's Community* in the Appendix.

Boston & Springfield had the Most Reported Burn Injuries
Boston & Springfield were home to the most burn injury victims with 28 burn injuries each in 2016. Lawrence had 24 burn injuries and Lowell had seven injury reports.

Burns Per 10,000 Population
The map on page 43, *2016 Burns by 10K Population*, displays the number of burns reported by community per 10,000 of its residents. The darker the community is shaded the more burns per 10,000 population were reported from that municipality. Cities and towns that are not shaded did not have a reported burn injury in 2016.

If we look at the number of burn injuries compared to the total population of the individual community we get a different picture. One would expect the bigger cities and towns to have more burn injuries because of their populations. When we calculate the rate of reported burn injuries for every 10,000 people in a given municipality, the ranking changes. The top six communities in terms of the total number of reported injuries fall towards the bottom of the rankings. Communities with one, two or three reported burns take over the top spots because of the very small populations. These communities may have a rate that far exceeds the actual number of burns that were reported. The legend symbols are consistent in both maps.

Chester had the highest rate of burn injuries per 10,000 population at 14.96. Next highest was New Braintree with 10.01 burn injuries per 10,000 population; Hinsdale had 9.84; Wales had 5.44; Adams had 4.71; and East Brookfield had 4.58 burn injuries per 10,000 population[6].

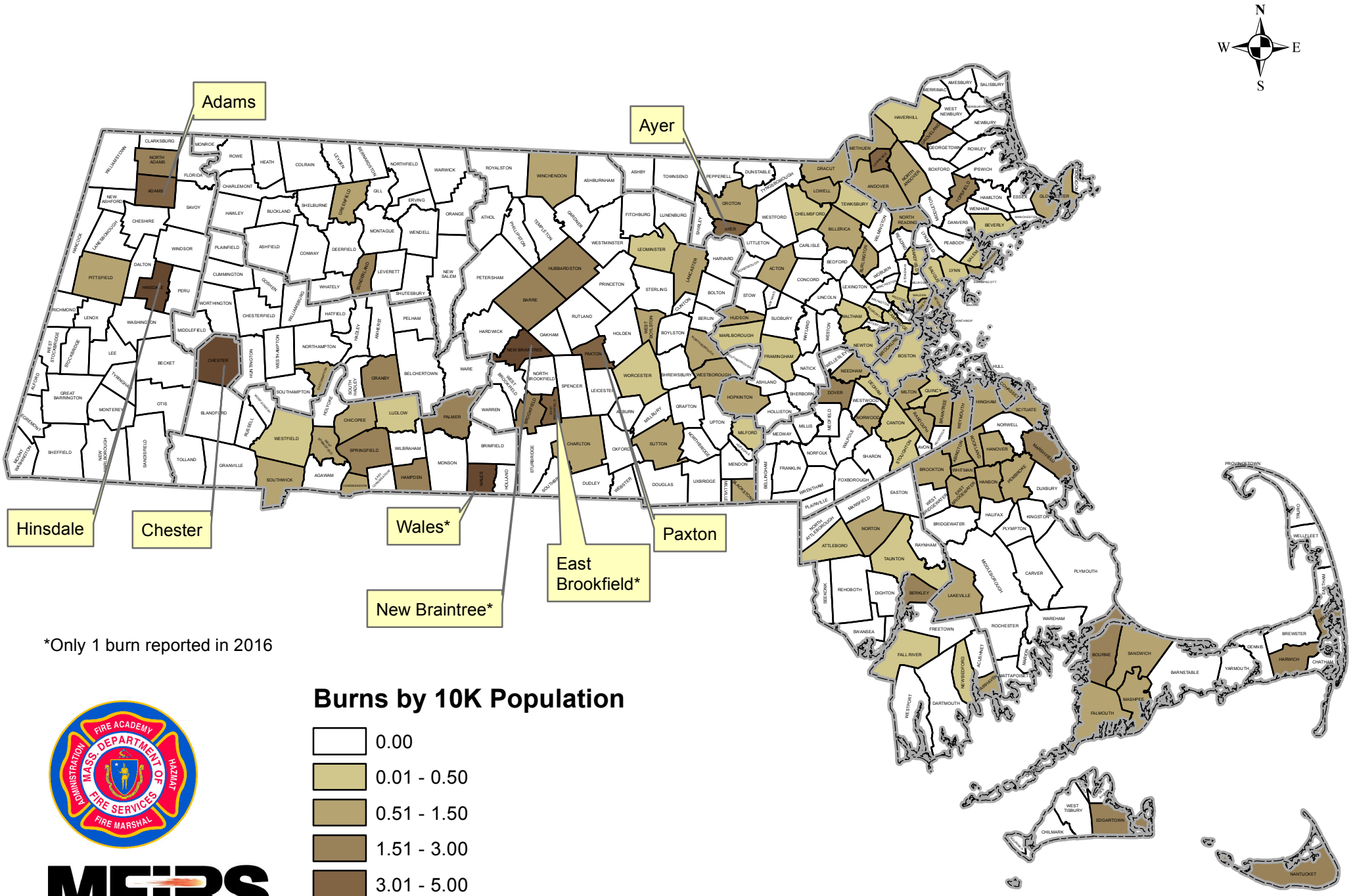
Scalds Per 10,000 Population

The map on page 44, *2016 Scalds per 10K Population*, displays the rate of reported scald burn injuries by the victim's home community for every 10,000 of that community's population. The darker the community is shaded the more burn injuries per 10,000 people were reported from that municipality. Cities and towns that are white did not have a reported burn injury in 2016.

Chester had the highest rate of 7.48 scald burn injuries per 10,000 population. Next highest was Manchester-by-the-Sea with 5.84 scald burn injuries per 10,000 population; Hubbardston had 2.28; Paxton had 2.08; and Hampden had 1.95 scald burn injuries per 10,000 population[7].

[6] All these towns except Hamilton (3) each only had 1 reported burn injury in 2016.
[7] All these towns except Hamilton (3) each had only 1 reported scald burn injury in 2016.

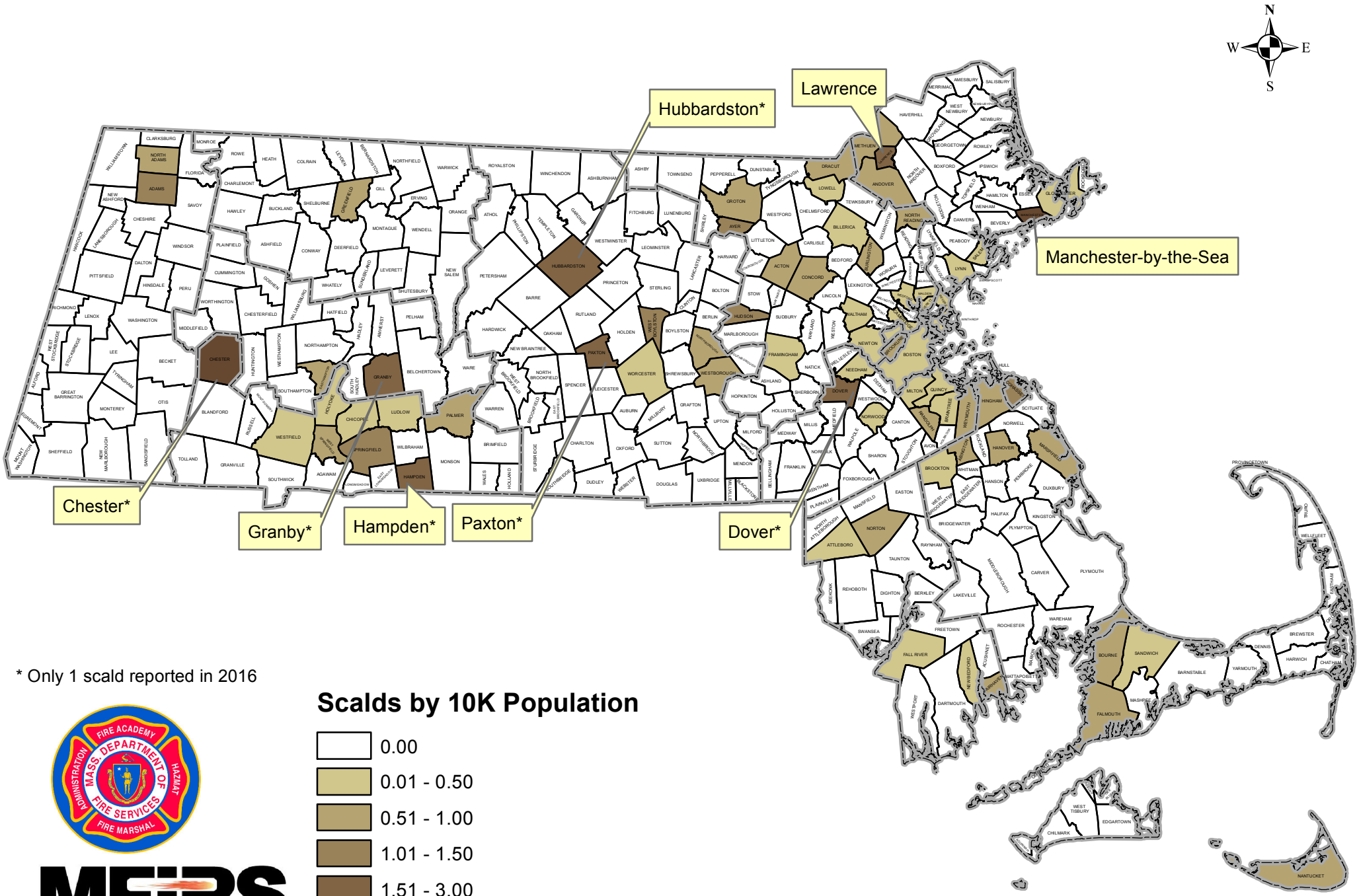
2016 MA Burns by 10K Population



*Only 1 burn reported in 2016

MFIRS
Massachusetts Fire Incident Reporting System

2016 MA Scalds by 10K Population



* Only 1 scald reported in 2016

MFIRS
Massachusetts Fire Incident Reporting System

2016 Appendix

* Italicized names are sub-categories for the headings listed above them.

Specific Causes of Burn Injuries

Cause	# of Burns	% of Burns
Scalds	**175**	**46.7%**
Cooking	92	24.5%
Cooking Liquids	*66*	*17.6%*
Hot Food	*21*	*5.6%*
Pressure Cooker	*4*	*1.1%*
Cook/Clothes	*1*	*0.3%*
Hot Beverage	53	14.1%
Hot Tap Water	17	4.5%
Car Radiator	2	0.5%
Steam	3	0.8%
Heating	5	1.3%
Boiler	*2*	*0.5%*
Heater	*2*	*0.5%*
Heating	*1*	*0.3%*
Pipe	1	0.3%
Ignitable Liquids	1	0.3%
Unknown	1	0.3%
Flame Burns	**66**	**17.6%**
Cooking	23	6.1%
Cooking Liquids	*8*	*2.1%*
Cook/Clothes	*4*	*1.1%*
Stove	*4*	*1.1%*
Cooking Unspec.	*4*	*1.1%*
Oven	*2*	*0.5%*
Barbeque	*1*	*0.3%*
Ignitable Liquids	10	2.7
Gasoline	*7*	*1.9%*
Ignitable Liquids	*3*	*0.8%*
Ignitable Gases	7	1.9%
Natural Gas	*3*	*0.8%*
Propane	*2*	*0.5%*
Gas Stove	*2*	*0.5%*
Smoking	5	1.3%
Smoke Oxygen	*2*	*0.5%*
Cigarette	*1*	*0.3%*
Smoking/Clothes	*1*	*0.3%*
E-Cigarette	*1*	*0.3%*
Candle	4	1.1%
Alcohol	3	0.8%
Heater	3	0.8%
Boiler	*1*	*0.3%*
Furnace	*1*	*0.3%*
Heater	*1*	*0.3%*

Cause	# of Burns	% of Burns
Flame Burns (con't)		
Child play	2	0.5%
Assault	2	0.5%
Battery	1	0.3%
Child w/matches	1	0.3%
Clothes	1	0.3%
Aerosol	1	0.3%
Flashburn	1	0.3%
Machine	1	0.3%
Fires	**59**	**15.7%**
Camp or bon fire	40	10.7%
Camp Fire	*22*	*5.9%*
Gasoline	*9*	*2.4%*
Bonfire	*4*	*1.1%*
Ignitable Liquids	*3*	*0.8%*
Child Gasoline	*1*	*0.3%*
Embers	*1*	*0.3%*
House fire	16	4.3%
House Fire	*10*	*2.7%*
Candle	*2*	*0.5%*
Barbeque Gas	*1*	*0.3%*
Electrical	*1*	*0.3%*
Gas	*1*	*0.3%*
Smoking	*1*	*0.3%*
MV fire	2	0.5%
Car Fire	*2*	*0.5%*
Structure fire	1	0.3%
Structure Fire	*1*	*0.3%*
Explosions	**32**	**8.5%**
Gasoline	6	1.6%
Fireworks	5	1.3%
Smoking	5	1.3%
E-Cigarette	*4*	*1.1%*
Smoking	*1*	*0.3%*
Chemical	4	1.1%
Cooking	3	0.8%
Barbeque Gas	*2*	*0.5%*
Stove	*1*	*0.3%*
Battery	2	0.5%
Aerosol	1	0.3%
Appliance	1	0.3%
Electrical	1	0.3%

Cause	# of Burns	% of Burns
Explosions (con't)		
Explosion	1	0.3%
Gas Stove	1	0.3%
Hot Beverage	1	0.3%
Lawn Mower	1	0.3%
Contact Burns	**14**	**3.7%**
Embers	3	0.8%
Asphalt	2	0.5%
Asphalt	*1*	*0.3%*
Pavement	*1*	*0.3%*
Cooking	2	0.5%
Cooking Liquids	*1*	*0.3%*
Cooking Unspec.	*1*	*0.3%*
Heating	2	0.5%
Radiator	*1*	*0.3%*
Woodstove	*1*	*0.3%*
Car Part	1	0.3%
Contact	1	0.3%

Cause	# of Burns	% of Burns
Contact Burns (con't)		
Clothes Iron	1	0.3%
Wax	1	0.3%
Warmer	1	0.3%
Electrical Burns	**9**	**2.4%**
Electrocution	7	1.9%
Electrical	1	0.3%
Flashburn	1	0.3%
Other Burns	**14**	**3.7%**
Chemical	10	2.7%
Sunburn	2	0.5%
Metal	1	0.3%
Cooking Liquids	1	0.3%
Domestic Violence	**1**	**0.3%**
Ignitable Liquids	1	0.3%

Causes of Burn Injuries by Age

Under 5	**100**	**26.7%**
Cause	**# Of Burns**	**% By Age**
Scalds	**81**	**81.0%**
Hot Beverages	39	39.0%
Cooking	31	31.0%
Cooking Liquids	*16*	*16.0%*
Hot Food	*14*	*14.0%*
Pressure Cooker	*1*	*1.0%*
Hot Tap Water	10	10.0%
Scald	1	1.0%
Fires	**9**	**9.0%**
Camp Or Bon Fire	6	6.0%
Camp Fire	*4*	*4.0%*
Bonfire	*2*	*2.0%*
House Fire	3	3.0%
House Fire	*2*	*2.0%*
Candle	*1*	*1.0%*
Contact Burns	**6**	**6.0%**
Embers	2	2.0%
Clothes Iron	1	1.0%
Contact	1	1.0%
Radiator	1	1.0%
Warmer	1	1.0%
Other Burns	**2**	**2.0%**
Chemical	1	1.0%
Sunburn	1	1.0%
Flame Burns	**1**	**1.0%**
Candle	1	1.0%
Explosion	**1**	**1.0%**
Fireworks	1	1.0%

Ages 5 to 9	**27**	**7.2%**
Cause	**# Of Burns**	**% By Age**
Scalds	**18**	**66.7%**
Cooking Liquids	7	25.9%
Hot Beverages	4	14.8%
Hot Food	4	14.8%
Hot Tap Water	2	7.4%
Steam	1	3.7%
Fires	**4**	**14.8%**
Camp Or Bon Fire	3	11.1%
Camp Fire	*2*	7.4%
Embers	*1*	3.7%
House Fire	1	3.7%
Gas	*1*	3.7%
Flame Burns	**3**	**11.1%**
Alcohol	1	3.7%
Clothes	1	3.7%
Cook/clothes	1	3.7%
Explosion	**1**	**3.7%**
Fireworks	1	3.7%
Contact Burns	**1**	**3.7%**
Car Part	1	3.7%

Ages 10 to 14	**17**	**4.5%**
Cause	**# of Burns**	**% by Age**
Scalds	**9**	**52.9%**
Cooking	6	35.3%
Cooking Liquids	*3*	*17.6%*
Hot Food	*2*	*11.8%*
Cooking Unspec.	*1*	*5.9%*
Hot Beverages	2	11.8%
Hot Tap Water	1	5.9%
Flame Burns	**5**	**29.4%**
Candle	2	11.8%
Child Play	2	11.8%
Child w/Matches	*1*	*5.9%*
Child Play	*1*	*5.9%*
Cook/Clothes	1	5.9%
Fires	**1**	**5.9%**
Camp Or Bon Fire	1	5.9%
Child w/Gasoline	*1*	*5.9%*
Electrical Burns	**1**	**5.9%**
Electrocution	1	5.9%
Explosions	**1**	**5.9%**
Appliance	1	5.9%

Ages 15 to 24	**51**	**13.5%**
Cause	**# of Burns**	**% by Age**
Flame Burns	**16**	**31.4%**
Cooking	5	9.8%
Cooking Liquids	*3*	*5.9%*
Cooking Unspec.	*1*	*2.0%*
Gas Stove	*1*	*2.0%*
Alcohol	2	3.9%
Ignitable Liquids	4	7.8%
Gasoline	*2*	*3.9%*
Ignitable Liquids	*2*	*3.9%*
Aerosol	1	2.0%
Child Play	1	2.0%
Smoking	2	3.9%
Cigarette	*1*	*2.0%*
E-Cigarette	*1*	*2.0%*
Gas	1	2.0%
Scalds	**15**	**29.4%**
Cooking Liquids	9	17.6%
Hot Beverages	3	5.9%
Heating	2	3.9%
Heater	*1*	*2.0%*
Heating Unspec.	*1*	*2.0%*
Hot Tap Water	1	2.0%
Fires	**13**	**25.5%**
Camp Or Bon Fire	13	25.5%
Gasoline	*7*	*13.7%*
Bonfire	*2*	*3.9%*
Camp Fire	*2*	*3.9%*
Ignitable Liquids	*2*	*3.9%*
Explosions	**3**	**5.9%**
Smoking	2	3.9%
E-Cigarette	*1*	*2.0%*
Smoking Unspec.	*1*	*2.0%*
Explosion	1	2.0%
Other Burns	**2**	**3.9%**
Chemical	1	2.0%
Cooking Liquids	1	2.0%
Contact Burns	**1**	**2.0%**
Cooking Liquids	1	2.0%
Electrical Burns	**1**	**2.0%**
Electrocution	1	2.0%

Ages 25 to 34	**36**	**9.6%**
Cause	**# of Burns**	**% by Age**
Scald	**10**	**27.8%**
Cooking	7	19.4%
Cooking Liquids	*6*	*16.7%*
Pressure Cooker	*1*	*2.8%*
Hot Beverages	2	5.6%
Pipe	1	2.8%
Flame	**8**	**22.2%**
Ignitable Liquids	5	13.9%
Gasoline	*4*	*11.1%*
Ignitable Liquids	*1*	*2.8%*
Cooking Liquids	1	2.8%
Heater	1	2.8%
Natural Gas	1	2.8%
Explosion	**6**	**16.7%**
E-Cigarette	2	5.6%
Battery	1	2.8%
Hot Beverages	1	2.8%
Electrical	1	2.8%
Fireworks	1	2.8%
Fires	**5**	**13.9%**
Camp Or Bon Fire	4	11.1%
Camp Fire	*4*	*11.1%*
House Fire	1	2.8%
House Fire	*1*	*2.8%*
Other	**2**	**5.6%**
Chemical	1	2.8%
Metal	1	2.8%
Contact	**1**	**2.8%**
Asphalt	1	2.8%
Electrical	**4**	**11.1%**
Electrocution	4	11.1%

Ages 35 to 44	**45**	**12.0%**
Cause	**# of Burns**	**% by Age**
Scald	**13**	**28.9%**
Cooking	9	20.0%
Cooking Liquids	*8*	*17.8%*
Hot Food	*1*	*2.2%*
Car Radiator	2	4.4%
Hot Beverages	1	2.2%
Hot Tap Water	1	2.2%
Fire	**11**	**24.4%**
Camp Or Bon Fire	8	17.8%
Camp Fire	*6*	*13.3%*
Gasoline	*1*	*2.2%*
Ignitable Liquids	*1*	*2.2%*
House Fire	2	4.4%
Electrical	*1*	*2.2%*
House Fire	*1*	*2.2%*
Structure Fire	1	2.2%
Structure Fire	*1*	*2.2%*
Flame	**11**	**24.4%**
Cooking	7	15.6%
Cooking Liquids	*2*	*4.4%*
Barbeque	*1*	*2.2%*
Cooking Unspec.	*1*	*2.2%*
Gas Stove	*1*	*2.2%*
Oven	*1*	*2.2%*
Stove	*1*	*2.2%*
Heating	2	4.4%
Boiler	*1*	*2.2%*
Furnace	*1*	*2.2%*
Assault	1	2.2%
Flashburn	1	2.2%
Explosion	**6**	**13.3%**
Gasoline	3	6.7%
Aerosol	1	2.2%
Battery	1	2.2%
Lawn Mower	1	2.2%
Contact	**2**	**4.4%**
Cooking	1	2.2%
Wax	1	2.2%
Other	**2**	**4.4%**
Chemical	2	4.4%

Ages 45 to 54	**41**	**11.0%**
Cause	**# of Burns**	**% by Age**
Scalds	**14**	**34.1%**
Cooking	10	24.4%
Cooking Liquids	*9*	*22.0%*
Pressure Cooker	*1*	*2.4%*
Heating	2	4.9%
Boiler	*1*	*2.4%*
Heater	*1*	*2.4%*
Ignitable Liquids	1	2.4%
Steam	1	2.4%
Flame Burns	**11**	**26.8%**
Ignitable Liquids	6	14.6%
Gasoline	*4*	*9.8%*
Ignitable Liquids	*2*	*4.9%*
Cooking	3	7.3%
Cooking Liquids	*1*	*2.4%*
Oven	*1*	*2.4%*
Stove	*1*	*2.4%*
Assault	1	2.4%
Smoke Oxygen	1	2.4%
Explosion	**5**	**12.2%**
Fireworks	1	2.4%
E-Cigarette	1	2.4%
Chemical	1	2.4%
Gasoline	2	4.9%
Fires	**4**	**9.8%**
Camp Or Bon Fire	3	7.3%
Camp Fire	*2*	*4.9%*
Gasoline	*1*	*2.4%*
House Fire	1	2.4%
House Fire	*1*	*2.4%*
Other Burns	**3**	**7.3%**
Chemical	2	4.9%
Sunburn	1	2.4%
Contact Burns	**2**	**4.9%**
Embers	1	2.4%
Pavement	1	2.4%
Electrical Burns	**2**	**4.9%**
Electrical	1	2.4%
Electrocution	1	2.4%

Ages 55 to 64	**36**	**9.6%**
Cause	**# of Burns**	**% by Age**
Scalds	**12**	**33.3%**
Cooking	8	22.2%
Cooking Liquids	*7*	*19.4%*
Pressure Cooker	*1*	*2.8%*
Hot Beverages	2	5.6%
Boiler	1	2.8%
Hot Tap Water	1	2.8%
Explosions	**7**	**19.4%**
Chemical	3	8.3%
Cooking	3	8.3%
Barbeque Gas	*1*	*2.8%*
Gas Stove	*1*	*2.8%*
Stove	*1*	*2.8%*
Fireworks	1	2.8%
Fires	**6**	**16.7%**
House Fire	3	8.3%
Barbeque Gas	*1*	*2.8%*
House Fire	*1*	*2.8%*
Smoking	*1*	*2.8%*
Camp Or Bon Fire	2	5.6%
Camp Fire	*2*	*5.6%*
MV Fire	1	2.8%
Car Fire	*1*	*2.8%*
Flame Burns	**5**	**13.9%**
Cooking	2	5.6%
Cooking Unspec.	*1*	*2.8%*
Stove	*1*	*2.8%*
Ignitable Gases	2	5.60%
Natural Gas	*1*	*2.8%*
Propane	*1*	*2.8%*
Candle	1	2.8%
Other Burns	**3**	**8.3%**
Chemical	3	8.3%
Contact Burns	**1**	**2.8%**
Woodstove	1	2.8%
Domestic Violence	**1**	**2.8%**
Ignitable Liquids	1	2.8%
Electrical Burns	**1**	**2.8%**
Flashburn	1	2.8%

Ages 65+	**21**	**5.6%**
Cause	**# of Burns**	**% by Age**
Flame Burns	**11**	**52.4%**
Cooking	5	23.8%
Cook/Clothes	*2*	*9.5%*
Cooking Unspec.	*1*	*4.8%*
Cooking Liquids	*1*	*4.8%*
Stove	*1*	*4.8%*
Smoking	2	9.5%
Smoke Oxygen	*1*	*4.8%*
Smoking/Clothes	*1*	*4.8%*
Battery	1	4.8%
Gasoline	1	4.8%
Machine	1	4.8%
Propane	1	4.8%
Fires	**5**	**23.8%**
House Fire	5	23.8%
House Fire	*4*	*19.0%*
Candle	*1*	*4.8%*
Scalds	**3**	**14.3%**
Cooking Liquids	1	4.8%
Steam	1	4.8%
Hot Tap Water	1	4.8%
Explosions	**2**	**9.5%**
Barbeque Gas	1	4.8%
Gasoline	1	4.8%

Causes of Work-Related Burns

Cause	# of Burns	% of Work-related
Scalds	**16**	**32%**
Cooking Liquids	10	20%
Hot Beverages	3	6%
Boiler	1	2%
Pipe	1	2%
Steam	1	2%
Explosions	**9**	**18%**
Chemical	3	6%
Battery	1	2%
E-Cigarette	1	2%
Electrical	1	2%
Explosion	1	2%
Fireworks	1	2%
Lawn Mower	1	2%
Other Burns	**8**	**16%**
Chemical	7	14%
Metal	1	2%

Cause	# of Burns	% of Work-related
Flame Burns	**7**	**14%**
Ignitable Gases	3	6%
Natural Gas	*2*	*4%*
Gas Stove	*1*	*2%*
Gasoline	2	4%
Boiler	1	2%
Cooking Liquids	1	2%
Electrical Burns	**6**	**12%**
Electrocution	4	8%
Electrical	1	2%
Flashburn	1	2%
Contact	**3**	**6%**
Asphalt	1	2%
Cooking	2	4%
Cooking Unspec.	*1*	*2%*
Cooking Liquids	*1*	*2%*
Fires	**1**	**2%**
House Fire	1	2%
Total	**50**	**100%**

Number of Reported Burns Per Hospital

Addison Gilbert Hospital	4
Anna Jacques Hospital	2
Baystate Medical Center	40
Baystate - Franklin Medical Center	1
Berkshire Medical Center	6
Beth Israel Deaconess - Milton	1
Beth Israel Deaconess - Plymouth	2
Brigham & Women's Hospital	8
Boston Medical Center	2
Carney Hospital	1
Charlton Memorial Hospital	2
Children's Hospital	9
Emerson Hospital	3
Falmouth Hospital	6
Good Samaritan Medical Center	5
Lawrence General Hospital	31
Lowell General Hospital	7
Massachusetts General Hospital	137
Mercy Hospital	2
Milford Regional Medical Center	1
Morton Hospital	2
Nantucket Cottage Hospital	3
North Shore Medical Center	1
Norwood Hospital	1
Shriners Hospital for Children	91
South Shore Medical Center	22
St. Anne's Hospital	1
St. Elizabeth's Hospital	2
St. Luke's Hospital	1
Sturdy Memorial Medical Center	3
Tufts Medical Center	1
UMass Medical Center - Clinton	1
UMass Medical Center - University	18

Causes of Burn Injuries by Month

January	**41**	**10.9%**
Cause	**# of Burns**	**% by Month**
Scalds	**21**	**51.2%**
Cooking	12	29.3%
Cooking Liquids	*11*	*26.8%*
Hot Food	*1*	*2.4%*
Hot Beverages	8	19.5%
Heater	1	2.4%
Explosions	**8**	**19.5%**
Chemical	3	7.3%
Gasoline	2	4.9%
Beverage	1	2.4%
Battery	1	2.4%
Appliance	1	2.4%
Flame Burns	**5**	**12.2%**
Battery	1	2.4%
Cooking	2	4.9%
Cooking Unspec.	*1*	*2.4%*
Cooking Liquids	*1*	*2.4%*
Gasoline	1	2.4%
Natural Gas	1	2.4%
Fires	**4**	**9.8%**
House Fire	3	7.3%
House Fire	*2*	*4.9%*
Electrical	*1*	*2.4%*
Camp Or Bon Fire	1	2.4%
Ignitable Liquids	*1*	*2.4%*
Other Burns	**2**	**4.9%**
Metal	1	2.4%
Chemical	1	2.4%
Contact Burns	**1**	**2.4%**
Clothes Iron	1	2.4%

1 Death

February	**22**	**5.9%**
Cause	**# of Burns**	**% by Month**
Scalds	**14**	**70.0%**
Cooking	8	40.0%
Cooking Liquids	*6*	*30.0%*
Hot Food	*2*	*10.0%*
Hot Beverages	4	20.0%
Heating	**2**	10.0%
Boiler	*1*	*5.0%*
Heating Unspec.	*1*	*5.0%*
Hot Tap Water	1	5.0%
Flame Burns	**3**	**13.6%**
Cooking	2	10.0%
BBQ	*1*	*5.0%*
Cook/Clothes	*1*	*5.0%*
Candle	1	5.0%
Fires	**2**	**10.0%**
House Fire	1	5.0%
Natural Gas	*1*	*5.0%*
Camp Or Bon Fire	1	5.0%
Camp Fire	*1*	*5.0%*
Contact Burns	**1**	**5.0%**
Pavement	1	5.0%
Other Burns	**1**	**5.0%**
Cooking Liquids	1	5.0%

0 Deaths

March	**30**	**8.0%**
Cause	**# of Burns**	**% by Month**
Fires	**1**	**3.3%**
Camp Or Bon Fire	1	3.3%
Camp Fire	*1*	*3.3%*
Flame Burns	**9**	**30.0%**
Cooking	3	10.0%
Cooking Liquids	*1*	*3.3%*
Cooking Unspec.	*1*	*3.3%*
Oven	*1*	*3.3%*
Smoking	2	6.7%
Smoke Oxygen	*1*	*3.3%*
Smoking/Clothes	*1*	*3.3%*
Candle	1	3.3%
Clothes	1	3.3%
Ignitable Liquids	1	3.3%
Machine	1	3.3%
Explosions	**2**	**6.7%**
Gasoline	2	6.7%
Scalds	**17**	**56.7%**
Cooking	8	27.0%
Cooking Liquids	*5*	*16.7%*
Hot Food	*3*	*10.0%*
Hot Beverages	5	16.7%
Hot Tap Water	2	6.7%
Car Radiator	1	3.3%
Steam	1	3.3%
Other Burns	**1**	**3.3%**
Sunburn	1	3.3%

0 Deaths

April	**30**	**8.0%**
Cause	**# of Burns**	**% by Month**
Scalds	**15**	**50.0%**
Cooking	7	23.3%
Hot Food	*4*	*13.3%*
Cooking Unspec.	*1*	*3.3%*
Cooking Liquids	*1*	*3.3%*
Pressure Cooker	*1*	*3.3%*
Hot Beverages	5	16.7%
Hot Tap Water	3	10.0%
Flame Burns	**10**	**33.3%**
Cooking	3	10.0%
Cooking Liquids	*2*	*6.7%*
Cooking Unspec.	*1*	*3.3%*
Gasoline	2	6.7%
Assault	1	3.3%
Candle	1	3.3%
Child Play	1	3.3%
Ignitable Liquids	1	3.3%
Smoke Oxygen	1	3.3%
Fires	**4**	**13.3%**
Camp Or Bon Fire	3	10.0%
Gasoline	*2*	*6.7%*
Bonfire	*1*	*3.3%*
House Fire	*1*	3.3%
Candle	*1*	*3.3%*
Explosions	**1**	**3.3%**
Electrical	1	3.3%

0 Deaths

May	**26**	**6.9%**
Cause	**# of Burns**	**% by Month**
Scalds	**13**	**50.0%**
Cooking	9	35.0%
Cooking Liquids	*7*	*26.9%*
Hot Food	*2*	*7.7%*
Hot Beverages	3	11.5%
Hot Tap Water	1	3.8%
Fires	**5**	**19.2%**
Camp Or Bon Fire	4	15.4%
Camp Fire	*2*	*7.7%*
Bonfire	*1*	*3.8%*
Embers	*1*	*3.8%*
House Fire	1	3.8%
Smoking	*1*	*3.8%*
Explosions	**3**	**11.5%**
E-Cigarette	2	7.7%
Barbeque Gas	1	3.8%
Electrical Burns	**3**	**11.5%**
Electrical	1	3.8%
Electrocution	1	3.8%
Flashburn	1	3.8%
Flame Burns	**1**	**3.8%**
Cooking Liquids	1	3.8%
Contact Burns	**1**	**3.8%**
Cooking Unspecified	1	3.8%

0 Deaths

June	**36**	**9.6%**
Cause	**# of Burns**	**% by Month**
Scalds	**14**	**38.9%**
Cooking	11	30.6%
Cooking Liquids	*7*	*19.4%*
Hot Food	*4*	*11.1%*
Hot Beverages	2	5.6%
Heater	1	2.8%
Fires	**9**	**25.0%**
Camp Or Bon Fire	8	22.2%
Camp Fire	*3*	*8.3%*
Gasoline	*2*	*5.6%*
Child Gasoline	*1*	*2.8%*
Ignitable Liquids	*1*	*2.8%*
Bonfire	*1*	*2.8%*
House Fire	1	2.8%
House Fire	*1*	*2.8%*
Explosions	**4**	**11.1%**
Lawn Mower	1	2.8%
Gasoline	1	2.8%
Smoking	1	2.8%
Fireworks	1	2.8%
Flame Burns	**3**	**8.3%**
Alcohol	1	2.8%
Child Play	1	2.8%
Stove	1	2.8%
Contact Burns	**2**	**5.6%**
Car Part	1	2.8%
Warmer	1	2.8%
Electrical Burns	**2**	**5.6%**
Electrocution	2	5.6%

0 Deaths

July	**50**	**13.3%**
Cause	**# of Burns**	**% by Month**
Scalds	**18**	**36.0%**
Cooking	9	18.0%
Cooking Liquids	*7*	*14.0%*
Hot Food	*1*	*2.0%*
Pressure Cooker	*1*	*2.0%*
Hot Beverages	4	8.0%
Hot Tap Water	3	6.0%
Steam	2	4.0%
Explosions	**11**	**22.0%**
Fireworks	4	8.0%
Cooking	2	4.0%
Barbeque Gas	*1*	*2.0%*
Stove	*1*	*2.0%*
Aerosol	1	2.0%
Battery	1	2.0%
E-Cigarette	1	2.0%
Explosion	1	2.0%
Gasoline	1	2.0%
Fires	**11**	**22.0%**
Camp Or Bon Fire	10	20.0%
Camp Fire	*6*	*12.0%*
Gasoline	*2*	*4.0%*
Bonfire	*1*	*2.0%*
Ignitable Liquids	*1*	*2.0%*
MV Fire	1	2.0%
Car Fire	*1*	*2.0%*
Flame Burns	**6**	**12.0%**
Gasoline	2	4.0%
Cooking	3	6.0%
Oven	*1*	*2.0%*
Stove	*1*	*2.0%*
Gas Stove	*1*	*2.0%*
Aerosol	1	2.0%
Other Burns	**3**	**6.0%**
Chemical	2	4.0%
Sunburn	1	2.0%
Contact Burns	**1**	**2.0%**
Embers	1	2.0%

0 Deaths

August	**43**	**11.5%**
Cause	**# of Burns**	**% by Month**
Scalds	**18**	**41.9%**
Cooking	9	20.9%
Cooking Liquids	*7*	16.3%
Hot Food	*2*	4.7%
Hot Beverages	6	14.0%
Car Radiator	1	2.3%
Ignitable Liquids	1	2.3%
Hot Tap Water	1	2.3%
Fires	**9**	**20.9%**
Camp Or Bon Fire	6	14.0%
Camp Fire	*4*	*9.3%*
Gasoline	*2*	*4.7%*
House Fire	2	4.7%
Barbeque Gas	*1*	*2.3%*
House Fire	*1*	*2.3%*
Structure Fire	1	2.3%
Structure Fire	*1*	*2.3%*
Flame Burns	**9**	**20.9%**
Ignitable Liquids	3	6.9%
Gasoline	*2*	4.7%
Ignitable Liquids	*1*	2.3%
Smoking	2	4.7%
Cigarette	*1*	2.3%
E-Cigarette	*1*	2.3%
Alcohol	1	2.3%
Assault	1	2.3%
Child w/Matches	1	2.3%
Gas Stove	1	2.3%
Other Burns	**4**	**9.3%**
Chemical	4	9.3%
Contact Burns	**2**	**4.7%**
Asphalt	1	2.3%
Wax	1	2.3%
Electrical Burns	**1**	**2.3%**
Electrocution	1	2.3%

1 Death

September	**27**	**7.2%**
Cause	**# of Burns**	**% by Month**
Scalds	**12**	**44.4%**
Cooking	6	22.2%
Cooking Liquids	*4*	*14.8%*
Hot Food	*1*	*3.7%*
Pressure Cooker	*1*	*3.7%*
Hot Beverages	4	14.8%
Boiler	1	3.7%
Hot Tap Water	1	3.7%
Flame Burns	**8**	**29.6%**
Ignitable Liquids	3	11.1%
Ignitable Liquids	*2*	*7.4%*
Gasoline	*1*	*3.7%*
Cooking	3	11.1%
Cook/Clothes	*1*	*3.7%*
Cooking Liquids	*1*	*3.7%*
Stove	*1*	*3.7%*
Candle	1	3.7%
Natural Gas	1	3.7%
Fires	**3**	**11.1%**
Camp Or Bon Fire	2	7.4%
Camp Fire	*2*	*7.4%*
House Fire	1	3.7%
House Fire	*1*	*3.7%*
Contact Burns	**2**	**7.4%**
Embers	2	7.4%
Other Burns	**2**	**7.4%**
Chemical	2	7.4%

0 Deaths

October	**20**	**5.3%**
Cause	**# of Burns**	**% by Month**
Scalds	**9**	**45.0%**
Hot Beverages	5	25.0%
Cooking Liquids	2	10.0%
Pipe	1	5.0%
Hot Tap Water	1	5.0%
Flame Burns	**6**	**30.0%**
Cooking Liquids	2	10.0%
Alcohol	1	5.0%
Boiler	1	5.0%
Gasoline	1	5.0%
Propane	1	5.0%
Fires	**3**	**15.0%**
Camp Or Bon Fire	2	10.0%
Camp Fire	*1*	*5.0%*
Gasoline	*1*	*5.0%*
House Fire	1	5.0%
Candle	*1*	*5.0%*
Electrical Burns	**2**	**10.0%**
Electrocution	2	10.0%

0 Deaths

November	**27**	**7.2%**
Cause	**# of Burns**	**% by Month**
Scalds	**12**	**44.4%**
Cooking	5	18.5%
Cooking Liquids	*4*	*14.8%*
Pressure Cooker	*1*	*3.7%*
Hot Beverages	4	14.8%
Hot Tap Water	2	7.4%
Scald	1	3.7%
Fires	**5**	**18.5%**
House Fire	3	11.1%
House Fire	*3*	*11.1%*
Camp Or Bon Fire	2	7.4%
Camp Fire	*2*	*7.4%*
Flame Burns	**5**	**18.5%**
Cook/Clothes	2	7.4%
Flashburn	1	3.7%
Gas	1	3.7%
Gasoline	1	3.7%
Explosions	**3**	**11.1%**
Chemical	1	3.7%
E-Cigarette	1	3.7%
Gas Stove	1	3.7%
Contact Burns	**2**	**7.4%**
Cooking Liquids	1	3.7%
Woodstove	1	3.7%

1 Death

December	**23**	**6.1%**
Cause	**# of Burns**	**% by Month**
Fires	**3**	**13.0%**
House Fire	2	8.7%
House Fire	*2*	*8.7%*
MV Fire	1	4.3%
Car Fire	*1*	*4.3%*
Flame Burns	**6**	**26.1%**
Cooking	2	8.7%
Cooking Unspec.	*1*	*4.3%*
Stove	*1*	*4.3%*
Heating	2	8.7%
Furnace	*1*	*4.3%*
Heater	*1*	*4.3%*
Gasoline	1	4.3%
Propane	1	4.3%
Contact Burns	**2**	**8.7%**
Contact	1	4.3%
Radiator	1	4.3%
Electrical Burns	**1**	**4.3%**
Electrocution	1	4.3%
Scald Burns	**11**	**47.8%**
Cooking	6	26.1%
Cooking Liquids	*5*	*21.7%*
Hot Food	*1*	*4.3%*
Hot Beverages	3	13.0%
Hot Tap Water	2	8.7%

1 Death

Burn Injuries by Victim's Community

County	# of Burns
Barnstable	**13**
Bourne	4
Falmouth	2
Harwich	2
Mashpee	1
Orleans	1
Sandwich	3
Berkshire	**11**
Adams	4
North Adams	3
Pittsfield	4
Bristol	**11**
Attleboro	1
Berkley	1
Fairhaven	1
Fall River	3
New Bedford	1
North Attleboro	1
Norton	1
Taunton	2
Dukes	**1**
Edgartown	1
Essex	**53**
Andover	3
Beverly	1
Gloucester	4
Groveland	1
Haverhill	2
Lawrence	24
Lynn	4
Marblehead	1
Methuen	5
North Andover	2
Rockport	1
Salem	2
Saugus	1
Swampscott	1
Topsfield	1

County	# Of Burns
Franklin	**3**
Greenfield	2
Sunderland	1
Hampden	**47**
Chester	2
Chicopee	3
Hampden	1
Holyoke	2
Longmeadow	1
Ludlow	1
Palmer	4
Southwick	1
Springfield	28
Wales	1
West Springfield	2
Westfield	1
Hampshire	**2**
Easthampton	1
Granby	1
Middlesex	**46**
Acton	2
Ayer	3
Belmont	1
Billerica	3
Burlington	2
Cambridge	2
Chelmsford	1
Dracut	4
Everett	3
Framingham	3
Groton	1
Hanscom AFB	1
Hopkinton	1
Hudson	1
Lowell	7
Malden	2
Marlborough	1
Medford	1
Newton	2

Middlesex (con't)	
North Reading	1
Tewksbury	1
Wakefield	1
Waltham	2
Nantucket	**2**
Nantucket	2
Norfolk	**24**
Braintree	2
Brookline	3
Canton	1
Cohasset	1
Dedham	1
Dover	1
Milton	2
Needham	2
Norwood	2
Quincy	2
Randolph	2
Stoughton	1
Weymouth	4
Plymouth	**22**
Abington	1
Brockton	5
East Bridgewater	1
Hanover	1
Hanson	1
Hingham	3

Plymouth (con't)	
Lakeville	1
Marshfield	4
Pembroke	2
Scituate	2
Whitman	1
Suffolk	**34**
Boston	28
Revere	4
Winthrop	2
Worcester	**21**
Barre	1
Blackstone	1
Brookfield	1
Charlton	1
East Brookfield	1
Hubbardston	1
Lancaster	1
Leominster	1
Milford	1
New Braintree	1
Northborough	1
Paxton	1
Sutton	1
West Boylston	1
Westborough	1
Winchendon	1
Worcester	5